

Issued Every Month

For Free Distribution to Users
of Machine Tools

**HITCHCOCK'S
MACHINE
TOOL LIST**

A Reference Book for Buyers
of Iron Working Machinery

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago

S T A M P I N G S

Special Equipment for Quantity Production

PORCELAIN ENAMELING

Special Equipment for Quantity Production

SHEET-METAL ARTICLES & PARTS

Special Equipment for Quantity Production

Keep Down Your Overhead

Don't install your own sheet-metal department, if it must stand idle any considerable part of the time. Idle machinery piles up overhead.

G.P.&F. Service **Knowing How Since '81**

keeps down overhead for hundreds of concerns. Why not let it do the same for you? Our machinery is always busy. Our 15 acres of modern machinery, 33 years of experience, and expert staff of specializing operators are at your command.

We can do your sheet-metal work right and at a saving to you.

Send samples or blue prints for estimates.

Geuder, Paeschke & Frey Co.

1321-1700 St. Paul Ave.

MILWAUKEE, WIS.



200 Screw Machine Jobs

are illustrated in this book, and every piece shown was completed in the time of **one operation.**

This includes all classes of work up to $2\frac{1}{4}$ " chuck diameter that can be done on a screw machine, or that should be.

The machine that does the work is shown with one of the jobs on the two center pages of this issue of Hitchcock's List. It's the ACME MULTIPLE SPINDLE AUTO-MATIC.

*Read these center pages, then ask us
to mail you this book*

NEW YORK
BOSTON
CHICAGO
DETROIT
ATLANTA
MONTREAL

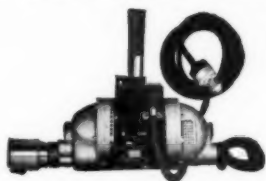
**THE NATIONAL-ACME
MANUFACTURING CO.
CLEVELAND**

EUROPEAN REPS:
SCHUCHARDT & SCHÜTTE

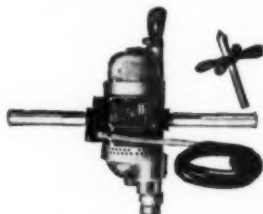
AUSTRALIAN REPS:
BENSON BROS. PTY. LTD. SYDNEY

Universal Motor Drills

For Use On Either Current



This drill is made in 3-16", 1", 3/8" & 1/2" size. Gears run in grease. Motor air cooled, and is made to stand hard service. Sent on trial.



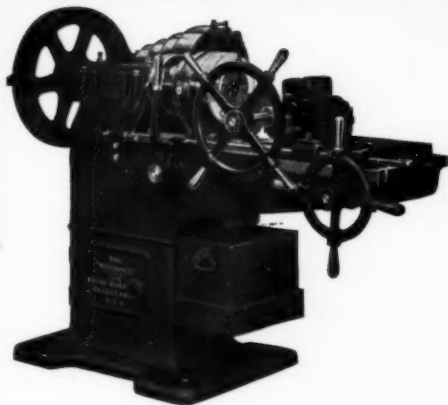
0 to 7/8 Universal Drill

The motors used in these drills are Westinghouse motors, and operate on 25, 30, 40 or 60 cycle. 110 or 220 volts.

The U. S. Electrical Tool Co.
Cincinnati, Ohio

NEW YORK, - 50 Church St. CHICAGO, - 9 S. Clinton St.
BOSTON, - - 12 Pearl St. ST. LOUIS, 511 Commercial Bldg.

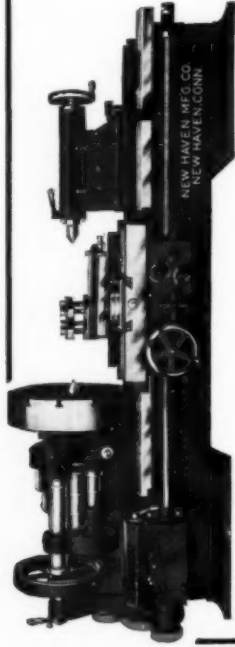
Stock carried at branch offices.



Reliance Bolt Cutters

Built in sizes $\frac{3}{4}$ inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

The Foote-Burt Co., Makers
Cleveland, Ohio



A lathe is
as good as
its weakest
point.

New Haven 36-In. Heavy Cost-Reducing Lathe

With 14-ft. to 36-ft. Bed and Back Geared or Triple Geared Head

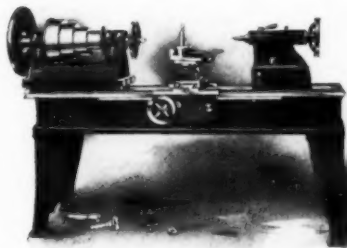
Special features are good things. New Havens are full of them. But their most dependable feature is one that stands out best under the stress of heavy work—and that is, the elimination of "the weakest points," that are all too common in machinery. That is where our long experience comes in. Our entire efforts, covering a long period of years, have been devoted to the building of right-up-to-the-minute lathes that have no concealed points of weakness. While this has required eternal vigilance, it adds much to their value, but nothing to their price.

Tell us your needs—single or double back gear or triple gear—belt or motor drive—anything from 18-in. to 65-in. swing.

New Haven Manufacturing Co., - New Haven, Conn.

Patternmakers' Lathes

With Iron Beds



We are pioneers in making these machines, and we have improved them up to the minute. They are made to meet the peculiar requirements of pattern-making, and they do meet them so completely that these Iron-Bed Lathes have come to be universally regarded as the standard by which others are measured. This preeminence was not gained without infinite pains-taking, nor is it held without vigilant care. Every lathe must be a masterpiece—and it is.

We make eight sizes, 10, 16, 18, 20, 24, 30, 36 and 42 inches belt or motor driven.

Our line of Engine, Turret and Extension Gap Lathes is similarly complete, and the machines are in all respects as dependable and satisfactory. One of our Lathe Turrets will transform your engine lathe into a very satisfactory turret machine at a cost that is hardly more than nominal.

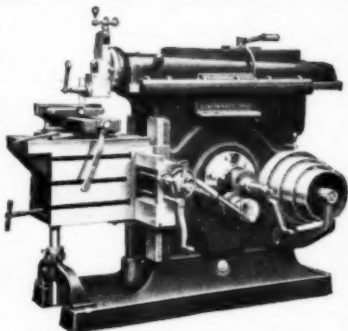
*A line will bring you interesting facts about any of these
or all of them. Won't you write it now?*

Fay & Scott, - Dexter, Maine

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B.G. Crank,
either Cone
Driven or
through
Speed Box.

24", 28", 32"
Geared
Shapers of
the Belt Shift
type.



The Smith & Mills Co. Station B.,
Cincinnati, O., U.S.A.

Extra Value in This Lathe



**16-in. Lathe
With 3-Step Cone and
Double Back Gears
At a Moderate Price**

High grade thruout, with massive headstock, all-steel gears, large bearings and phosphor bronze boxes. Users reorder because it's the "best buy" to be had today. Compare, and be convinced.

The Von Wyck Machine Tool Co., Cincinnati, O.

Harden Every Die and Tool Perfectly!

¶ You can do it in a Hoskins Electric Furnace. By its perfect control you can get exactly the right heat for maximum hardness and life. Its freedom from air blast and combustion gases prevents scale and soft spots. And its absolutely uniform heat eliminates warpage and breakage.

¶ Other facts about Hoskins Electric Furnaces are told in our interesting bulletins—No. 8 on Carbon Steel Furnaces and No. 10 on High Speed Steel Furnaces. Either or both, yours for the asking.



Write today to

HOSKINS MANUFACTURING COMPANY

*Electric—Furnaces, Pyrometers and Heating Appliances
"International" Ammeters and Voltmeters*

461 Lawton Avenue, DETROIT

Otis Bldg.
CHICAGO

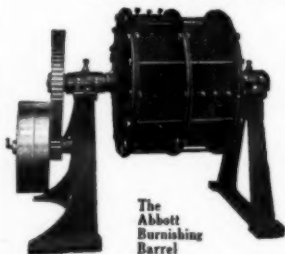
Oliver Bldg.
PITTSBURGH

30 Church St.
NEW YORK

Canadian Factory: Canadian Hoskins, Ltd., Walkerville, Ont.

Better Than Buffing

At a Fraction of the Cost



The
Abbott
Burnishing
Barrel

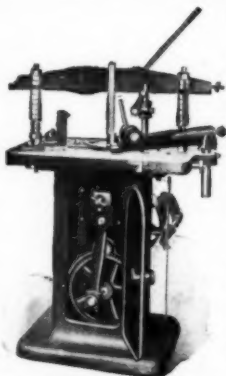
Burnishing

gives small metal parts a smoother, harder surface than buffing, and every part of every piece is finished. The Abbott process has reduced this slow, expensive work to the mere matter of loading the parts into the burnishing barrel and taking them out. Compared to the old way the cost is next to nothing. Nobody buffs who knows what burnishing will do. Take it up with us and let us show you.

A postal, mailed today, will bring you an interesting booklet, free.

The Abbott Ball Company

Elmwood District, Hartford, Conn.



Davis Keyseaters

Stand for Rapid Production

They meet every requirement as a manufacturing machine and can be economically used on large and small lots. Also adapted for Slotting, Oil-grooving, cutting Keyways in Bell-cranks and similar work.

Made in two sizes:

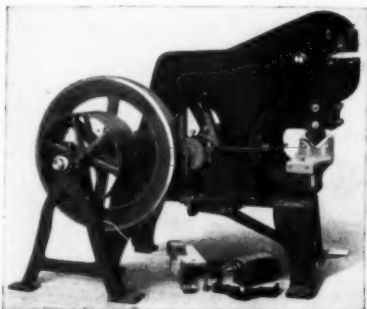
No. 1 Capacity $\frac{1}{8}$ in. to 1 in.

No. 2 Capacity $\frac{1}{4}$ in. to $\frac{3}{8}$ in.

Write for complete information and copy Treatise on Keyseating, mailed free

The W. P. Davis Machine Co., 307 St. Paul St.,
Rochester, N. Y.

Punches—Shears—Bending Rolls
The Beloit
Combined Power Punch And Shear



Built in five sizes. Nos. 51, 52, 53, 54 and 55

Direct connected motor or belt drive

This is the best all around punch and shear in a combined machine of moderate cost. It is heavy and substantial, and amply back geared to require the minimum amount of power; is strong, compact, and easy to operate. Can be equipped with angle shearing attachment, architectural jaw, or for special work.

We are putting out a complete line of punching and shearing machinery in both power and hand tools, also light and heavy duty bending rolls.

We do not overrate the capacities of our machines.

Write for catalogue and prices.

Slater, Marsden & Whittemore Co.

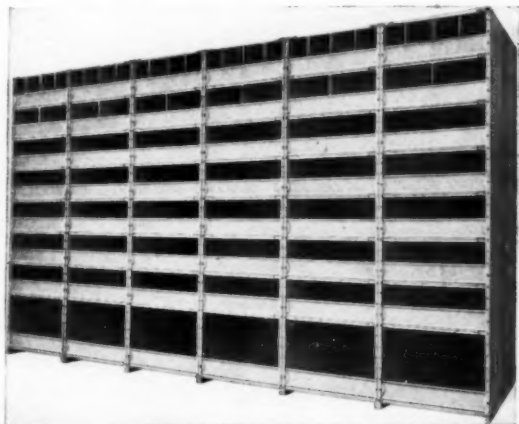
Box 444, Beloit, Wis.

Service and Saving

Distinguishing Characteristics of Terrell's Steel Factory Equipment

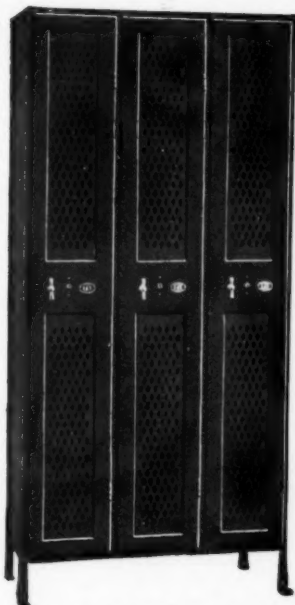
You get more and in the end pay less

The service the Terrell Equipment gives you is in the better use of your space, furnishing a greater storage capacity per cubic foot, or per square foot of floor; in the more orderly arrangement of materials stored, by making the shelves and bins fit the quantity and bulk of the articles they contain; in the convenience of handling the stuff, both in and out; in enabling you to adapt your outfit, by means of its interchangeable adjustable character, exactly to your requirements; and to maintain such adaptation indefinitely without trouble or substantial expense. The real, tangible service value of equipment that does not wear out or deteriorate with use, and that may easily be moved from one location to another, is evident.



The saving is no less marked. Once installed, it is as permanent as the walls of the building, and practically as indestructible. There is no expense for upkeep, no repairs, nothing to be charged off for deterioration. There is no fire risk, but on the other hand the insurance rate on the whole plant is lessened by reason of the protection which steel equipment affords. The combined advantages and economies of steel so far reduce the actual cost of storage with Terrell Equipment that the slightly larger initial investment is quickly recovered, while the gain goes on continuously.

And what is true of shelving and bins is true of Terrell Steel Lockers. These, too, are more economical in the long run than wooden ones, besides being safe, secure and sanitary. Lockers are a present necessity, and are likely shortly to become a legal requirement; protect yourself against future expense by installing Terrell Lockers now.



Get our figures before you conclude that Terrell Steel Equipment is too expensive. You may be surprised at its moderate first cost.

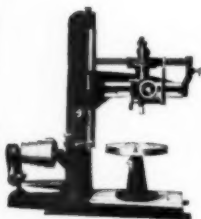
Get in touch with us

Information, advice and helpful suggestions are yours without cost or obligation.

Terrell's Equipment Company,

Hall and Division Sts., Grand Rapids, Mich.

If a Radial Drill works
in the hands of the Oper-
ator like the Eye in his
head—then it is a satis-
factory tool.



The New Gang Radial Drill
Catalogue ready for mailing

THE WM. E. GANG CO.
Cincinnati, O.

20" Power Drills

Made in
Eight Styles

Round or Square Base

LEVER FEED

LEVER and WHEEL FEED

**POWER FEED and Automatic
Stop**

**POWER FEED with Back Gears
and Automatic Stop**

Send for catalog



The Silver Mfg. Co., 385 Broadway
SALEM, OHIO

Manufacturers' First Choice

The Taylor & Fenn High Speed Radial Lowers
the Cost of Drilling Big, Heavy Pieces



ITS EXCEPTIONAL ECONOMY is due to our success in working out the problem of adjustments. Production records showing two and even three times the output of ordinary radials are not uncommon. The T. & F. makes it easy for you to put your small drilling in big work on the same plane of speed and low cost as ordinary sensitive drilling.

Built primarily for manufacturing, it has such fine adaptability that it makes good in any line where a tool of this type can be used.

Cost comparisons and full details sent on request.

Let us help you with your problem.

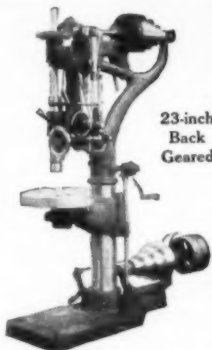
The Taylor & Fenn Company
Hartford, Conn.

Sturdy and Hustling

Mechanics' Drills

are built for severest service—they stand up perfectly under the hardest work. Power, capacity and durability are put into every component part—a winning combination.

Write for details of our complete up-to-date line. Both quality and prices will appeal to you.



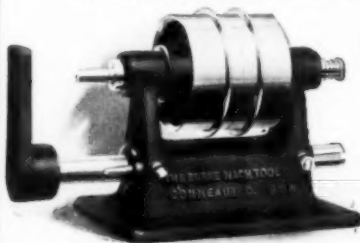
23-inch
Back
Geared

ROCKFORD MACHINE TOOL CO., - Rockford, Ill.

Manufacturers of Planers, Shapers and Mechanics' Drills.

Burke's Tapping Machines

Are Rapid, Accurate and Convenient



Made in
several
sizes
for
tapping
up to
1/2-inch

These tappers are built throughout with a good deal more than usual care, and you will be glad to know about them. If you will mail us your address, we shall be pleased to send full description and quote close prices.

The Burke Machine Tool Co., Conneaut,
Ohio

The Henry & Wright Sensitive Radial



A Peculiarly Efficient Machine

For drilling, reaming and tapping bulky pieces in which holes are mainly under $\frac{3}{4}$ -inch, as it will drill these with maximum economy, and at the same time handle whatever may be required up to $1\frac{1}{8}$ -inch. The time gained over shifting to another machine for a few larger holes is well worth saving. Ball bearing all around; patented, single belt, gearless power transmission. A remarkable combination of simplicity and effectiveness.

Particulars, and Our Feed and Speed Chart, Free—Ask for Both

The Henry & Wright Mfg. Co., 760 Windsor St., Hartford, Conn.

Not on Price

Not on Publicity

But on Service

It's not on price, nor on advertising but on Service—the daily grind, all day and every day, six days to the week—that we base our claims for

“Detroit” Twist Drills

Trade



Mark

We put into them every quality that makes for Service—Strength, Accuracy, Speed, Endurance and Easy Cutting Quality.

We make them in all sizes and styles, grooved and taper shank, carbon and high-speed steel for all kinds of work. We keep an immense stock on hand and can fill rush orders on short notice.

A good stiff test will convince you and you can make it without risking the loss of a single penny, for we cheerfully refund the purchase price on any which prove defective in material, construction or workmanship.

Look for the Trade-Mark.

Ask for Catalog “J.”

Select a trial order. We guarantee prompt shipment and absolutely satisfactory service.

Detroit Twist Drill Co.

Improving Twist Drills Since 1886

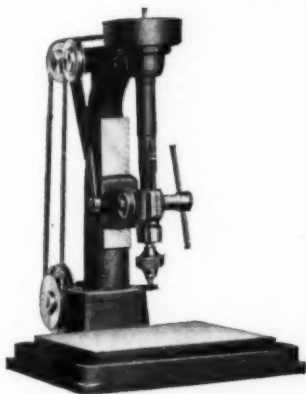
510-522 Fort Street, Detroit, Mich.

633 Market St.
Philadelphia

412 First Ave.
Pittsburgh

30 Church St.
New York

A Factor In Production



This High Speed Drilling Machine

is especially designed to secure maximum output under modern manufacturing conditions. You should learn more about its features and advantages.

Ask for Bulletin No. 502

Leland-Gifford Co.
Worcester, Mass., U. S. A.





The Production Boss

"Don't Care A Cuss"

What **make** or **kind** of tool he uses—he wants **SERVICE**; he must have **continuous PRODUCTION**.

KELLY Adjustable Boring Tools and Floating Reamers give just the service he wants, or they are returnable at our expense.

Ask for Catalog H., our NEW ONE.

THE KELLY REAMER CO.
CLEVELAND, OHIO, U. S. A.

C. W. Burton Griffiths & Co., London, English Agts. 40 Domestic Agencies

The National KEYSEATER

made in 20 different diameters for your drill press. They cut internal keyways for straight or taper keys. The tool to use for duplicate work.

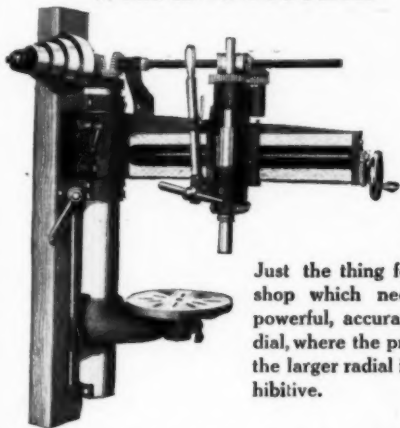


5000 in Use.

Ask for booklet O.

National Machine Tool Co.
2270 Spring Grove Ave., Cincinnati, Ohio

A New Wall or Post Radial With 2½-Foot Arm



Just the thing for the shop which needs a powerful, accurate radial, where the price of the larger radial is prohibitive.

A Machine which Combines the Features of Stationary Floor Drills up to 30" with the Range, Convenience and Adaptability of the Radial.

A complete drill, of great flexibility, containing many Canedy-Otto exclusive and valuable features, at a very moderate price for its power, range and capacity.

It drills to the center of a 64-inch circle outside of column, with a 9-inch up-and-down traverse of spindle. The spindle has a quick return hand lever in addition to the regular hand feed lever. Both the radial arm and the spindle head can be securely tightened in any position. Furnished with four-step countershaft, with self-oiling bearings, and equipped with all necessary gear guards (not illustrated).

*A machine for saving time and increasing capacity
Write for further description and price*

CANEDY-OTTO MFG. CO., Chicago Heights, Ill.

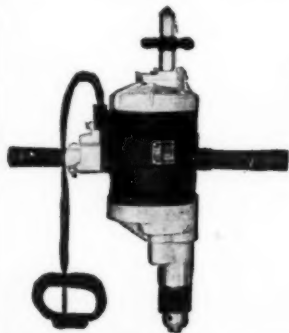
Always Dependable "Van Dorn"

(Portable)

Electric Drills
Reamers and Grinders
Built for Service

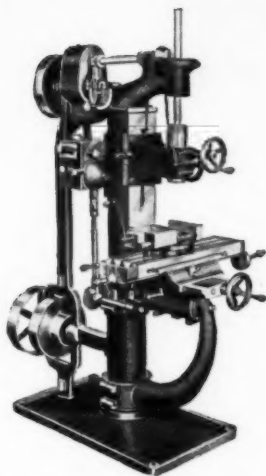
They embody all the essentials that insure long, continuous service.

The only kind of service you can afford to buy.



The
Van Dorn
Electric
Tool
Co.

Cleveland
Ohio
U. S. A.



Mill, Bore And Drill At Any Angle

With Only One Setting of the Work

The Knight Milling and Drilling Machines save from 20 to 50% of time on hard machining of all kinds. They make good in tool room, experimental department and shop. They have no equal today for dies, jigs, metal patterns, moulds, etc. Their many conveniences make them equal to two or three ordinary machines. Three sizes for you to select from.

A number of valuable practical hints are given in our illustrated Booklet.

Send For Your Copy Today.

W.B. Knight Machinery Co.
St. Louis, Mo.

The "Quickwork" Edge Turner

For turning edges on fenders, shields, aprons, tanks, or any other parts made of sheet metal up to No. 16 gauge.

No matter what your work of this kind may be, we can furnish the rolls that will adapt the machine to your particular requirements—also with beading, crimping and flanging rolls, and rotary cutters for shearing metal. This machine is a wonderful cost-reducer, while increasing production and improving the quality of the product.

Every up-to-date sheet-metal-working plant should be posted on our modern Edge-Turning Machine, as well as on our "Quickwork" Rotary Shears, Power Beaders, Beading and Bending Machines, Power Hammers, etc., etc.

Put your sheet-metal-working problems up to us. We are experts. And write now for "Quickwork" catalog.

H. Collier Smith, 815 Scotten Ave., Detroit, Mich.



For Speed

The Grant Rivet Spinning Machine is to hand or hammer blow riveting, what the automobile is to the steam road roller.

There is absolutely no comparison.

Other points in favor of Grant Rivet Spinners are:—

- Noiseless in operation.
- Spin well polished heads.
- Eliminate broken castings.
- Rivets tight or loose.

Send samples to be riveted and returned to you for inspection.

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.



Don't Rivet It

**When You Can Save 60% to 90%
By Spot Welding It**

One example: A manufacturer paid \$4.50 per 100 pieces for riveting a certain article. He now pays 75¢ per 100 for spot welding the same article. Figure for yourself the percentage of saving and the increase in production.

If you rivet, and your competitor spot welds—he can sell at a profit for less than your shop cost.

If you have a large amount of riveting to do, we will furnish you a spot welding machine at no cost to you—taking our pay in savings effected: that shows our confidence in the apparatus. Or—we will sell you a machine outright.

No Lease No License No Royalty

Our bulletins tell more about this "saving way" and they are yours for the asking.

**Butt Welders Seam Welders
Spot Welders**

Special machines for special work, for we are *Specialists* in Electric Welding Machines.

The Toledo Electric Welder Co.
Station A, Cincinnati, Ohio

H-O-W,

do you sharpen your Threading Dies?

Do you continue the primitive habit of hand-grinding—securing only 25 to 35% of the life and service in your Dies?



We can show you how to secure that other 65 to 75% of Die service that you are now grinding away.

A request for Circular "J", stating the kind of Dies you are using will bring our story.



Visitors were Convinced at the Chicago Show

They saw "M. E. C." Collapsible Taps in actual operation in connection with our Air Chucks, and had to acknowledge their splendid efficiency and all around economy.

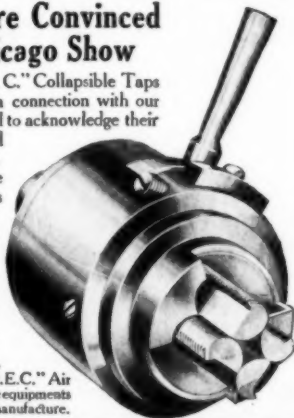
If you did not see them in action, let us send some tools on
30 Days' Trial

Write early, please

**Manufacturers
Equipment Co.**

169 No. Jefferson St.,
Chicago, Ill.

We manufacture various styles and sizes of "M.E.C." Air Chucks & furnish complete equipments of tools for brass & iron manufacture.



Are You Paying for a Canton Crane Without having one



When you have a heavy lift to set will you call six men from their work to assist when it is only a one man job with the "Handy Tool"? Are you paying for this extra labor—which in one year amounts to several times the cost of this Hoist? In other words, are you paying for a CANTON Crane without being able to use it?

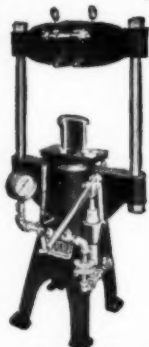
The "Handiest Tool in the Shop"

goes quickly where nothing else can reach—it makes one man's time worth six and no matter how well you are equipped, it is bound to speed up your production. Catalog E-8 gives you interesting facts.

Write for it

Canton Foundry & Machine Co.
Canton, Ohio

Lourie Manufacturing Co. Springfield, Ill.



Type "B"

Make many styles and sizes of
Vertical and Horizontal
**Hydraulic Forcing
Presses**

Hand or Power

Write for
Circulars
and
Prices



Eames Arbor Presses

No. 0 Press. Cen-
tering capacity 10".

Price \$12,50.

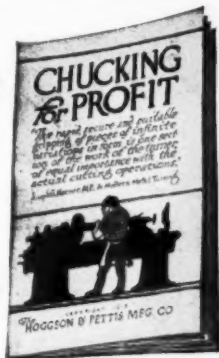


Proper Arbor Press equipment will pay as big a dividend on the investment as any improvement you can add to your factory. Mandrels are kept true and clean, and waste reduced to a minimum. Figure it out for yourself or ask a user of Eames Presses. We offer a complete line of powerful, efficient hand presses of the most improved and perfected type.

Manufactured by
G. T. Eames Co.
Kalamazoo, Mich.

Sold by leading dealers in
U. S. and Canada.
Alfred Herbert, Ltd., Agts.
for Great Britain and
Ireland.

**Will You
Accept a Copy
of this
Meaty Little
Book
if We Send it
Free?**



In many shops the job tickets show excessive time spent in chucking the work. This often changes what should be a profit into a loss, for the man's pay is the same for chucking time as for turning time.

Inadequate chucking methods also result in the unnecessary scrapping of much costly material.

"Chucking For Profit" will help you reduce these wastes in your shop—help you add to your net profits. It is full of valuable information for the practical-man-on-the-job, the foreman, the master-mechanic and especially for the **man who pays the bills.**

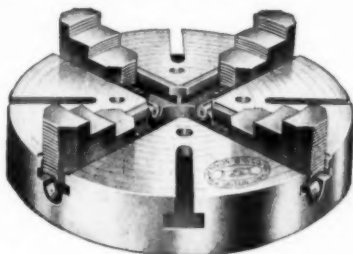
Tear out this page, write or stamp your name and address below, and mail it to us today. Your personal copy of the book will be sent at once, entirely free of cost or obligation.

The Hoggson & Pettis Mfg. Co., New Haven, Conn.
Makers of the Sweetland Chuck

Name

Address

The Right Chuck for Your Machine



If you are doing heavy and hard work, don't make the mistake of trying to do it with a light chuck. You want the Strongest Chuck you can find and that is the

Union Steel Body Independent Chuck

The body is a steel casting and practically indestructible. It is made for hard work and heavy duty, and while it costs more than the iron body chuck, it is worth the difference.

Let us show you

Union Manufacturing Co.

New York Office,
26 Cortlandt St.

New Britain, Conn.

Makers of a Complete Line of Chucks



**"The Chuck that never slips
The more you crowd it, the tighter it grips."**

No keys or spanners to get mislaid or lost; one hand works it, both ways.

It tightens itself; crowding only strengthens its grip; the drill can neither slip nor wobble.

Ball Bearings make release quick and easy, saving time and drills.

Shank forms part of chuck—a valuable feature.

The Coit Drill Chuck is one of those little time and trouble savers that pay dividends out of all proportion to their cost.

Like to try one? Let us know.

Narragansett Machine Co.
Vale St., Pawtucket, R. I.

We also manufacture Semi-Universal Grinding Machines,
Disc Grinders and Steel Lockers.

"Standard" High-Power Electric Drills and Grinders



**All Tools Are
Ball Bearing.**

**Best Imported
Bearings Used.**

We Manufacture a Full Line of Universal Drills and Grinders

To Operate on Both Alternating and Direct Current

They are tools of the highest power and greatest durability without increasing weight. They are handy, economical, simple and fool-proof.

"Standard" motors are insulated and impregnated with a special process. They are guaranteed not to run hot under the hardest continuous service. This safeguards against overloads and burn-outs, and enables the user to "speed up" and increase production.

Order A "Standard" on Trial

Also write for new Bulletins and Circular on Tests

**Ask us
for list
of users**

**THE
STANDARD**

ELECTRIC TOOL CO.
CINCINNATI, OHIO, U. S. A.

**New York
Office:
30 Church St.**

Get Just The Speed You Want

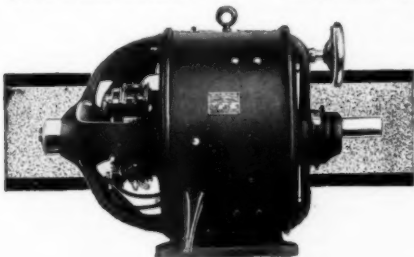
Don't handicap costly machines with a few fixed operating speeds. Make them really rapid producers by providing them with plenty of power and unlimited running speeds over wide ranges. It's easy to do this by applying

Reliance Adjustable Speed Motors

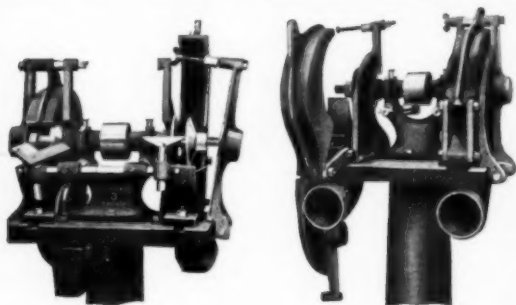
These motors run at any speed over any range up to 1 to 10. The speed changes are made by simply shifting the motor armature. There are no fixed steps and no current loss as the speed is varied.

Full details are given in our illustrated Folder 10 L. (We also build constant speed motors.)

Reliance Electric & Engineering Co.
1050 Ivanhoe Road, Cleveland, O.



Have You Seen Them?



Partridge Emery Grinders
Equipped With Guards

They insure safety to your men, and protection to your pay-roll.

They completely guard the wheel. Protect the end of shaft and nut.

Adjustable for wear from full size of wheels to the washers.

Write for particulars

E. O. Partridge

2047-9 W. Lake St.,

Chicago



Bristol
Precision
Surface
Grinder 12"

No. 2
Bristol
Miller



*Send for
Circulars*

We are ready; will you not say the word?

The C. G. Garrigus Machine Co.
Factory and Main Office, Bristol, Conn.
New York Office, 30 Church Street

Hire a Force of Specialists To Reduce Your Costs

Our organization and complete line of modern tools and specialties can be had to help you produce better work at lower costs. Air operated chucks, mandrels, jigs and fixtures, collapsing taps, dies, auxiliary drill heads, Kelly reamers, etc., are among our result producers. No matter what your problem, send us a B-P of it—you incur no obligation. Tools sent on approval.

ESTIMATES

PRODUCTION

J. R. STONE TOOL & SUPPLY CO.

Efficiency
Guaranteed

DETROIT, U.S.A.

SPECIALISTS

DEMONSTRATIONS

Write us early—we're going to be rushed before very long

**J. R. STONE
TOOL & SUPPLY CO.**

24 Goebel Bldg.,
Detroit, Michigan

Your Casualty Insurance Can be Reduced

by fitting your emery wheels with Valley City *Adjustable* Protection and Exhaust Hoods. All sizes and materials. You can fit them on any old make of Grinder.

Write for circular and quotation. Yes, we will send them on approval.

Valley City Mche. Wks.

Campan & Fulton Sts.
Grand Rapids, Mich.





A Gardner Grinder At Work

on the famous Lumen bearings. The bottoms are faced off and the two ends ground parallel and to given length. The output is way ahead of former methods of machining these pieces; a marked saving in material is effected; and, the standard of accuracy is dependable at all times.

This is one of the hundreds of jobs being done daily to great advantage on modern Gardner Grinders. On work suited to these machines we guarantee an increased output of 3 to 30 times. Send us some of your unfinished samples for a free demonstration, and you will be surprised to learn how fast and accurately some of your surfacing operations can be performed by the Gardner Grinder way.

"Actual Tests," a free booklet, shows 24 illustrated reports

Gardner Machine Company

The Disc Grinding Authorities

Beloit, Wisconsin

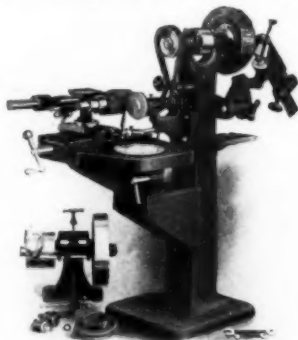
Largest Disc Grinder Builders in the World

**This is An Inexpensive
Cutter, Reamer and Drill Grinder**

**It has Generous Range and Capacity
The Price is Within Your Reach**

Don't delay—look it up now!

Particulars, prices, etc., sent on request.



Style BX

We also make

**Drill Grinders—Surface Grinders—
Lathe Center Grinders—Universal
Grinders—Tool Grinders—etc.**

Wilmarth & Morman Co.

1185 Monroe Ave., Grand Rapids, Mich.

Garvin

Universal Cutter and Surface Grinder

Simple, light running, easy to set, accurate, large capacity and all varieties of cutters provided for. Will grind Cutters 14 in. x 6 in., and Surfaces 6 in. x 9½ in.



Universal Cutter and Surface Grinder, with Motor Drive

Immediate Delivery

FOR FURTHER INFORMATION { ASK YOUR DEALER
OR
WRITE US DIRECT

Send for our new 1914 Catalogue

The Garvin Machine Co.

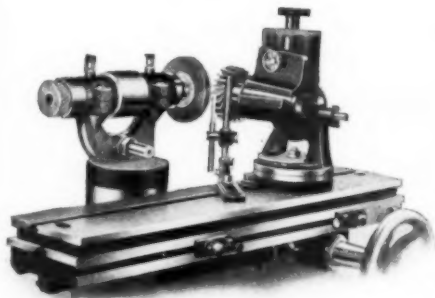
Spring and Varick Sts.,

New York City

A Tool Room Grinder

With Attachments for handling
every kind of grinding job

That's the *Greenfield*



The Attachment here shown is one that will be found in frequent use. It will hold any kind of shank, round or square, straight or taper. It may be quickly adjusted to any desired angle by means of the two swivels, both of which are graduated for quick use.

While this Attachment is adapted to many uses it is only one of those which we furnish with our Grinder.

Write for our new No. 5 catalog and get a complete description of the wonderfully useful little machine.

Greenfield Machine Company
Greenfield, Mass.

FREE

To Disc Grinder Users The Besly Circle Book

It will enable you to intelligently select and specify abrasive discs and other disc grinder supplies so that you may

Operate Your Disc Grinders More Efficiently

CONTENTS

Samples of 36 different abrasive discs, made from 6 different abrasives.

List of materials for which each abrasive is especially adapted.

Prices on all grades and all sizes of abrasive discs.

Prices on Disc Wheel Cements and other accessories.

Suggestions on proper installation and operation of disc grinders.

Write us today for your copy of this valuable book. Should be in the hands of every grinding room foreman and purchasing agent where disc grinders are used

Charles H. Besly & Co.

120-D North Clinton St.

Chicago,

U. S. A.

Largest Manufacturers of Disc Grinders in the World.



Registered
Trade Mark.



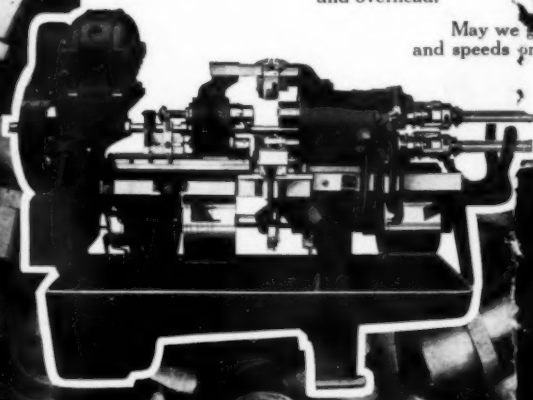
The Job— On Acme

This particular
screw machine job with
matics are turning out

The Method is to
and it completes all the operations
in this case the forming process

The Saving appears
usual screw machine operation
the usual cost for second
and overhead.

May we give you
and speeds on your





The Method—the Saving

Multiple Spindle Automatics

Acme is shown because it would be an average side-milling—position 3. But Acme Automatics complete including the milling cuts.

operate all the tools at once (any number up to eight) in the time it takes for the longest single cut—position 1. The Acme is automatic in every detail.

Acme is not only in reducing the time for all the operations to the time of one, but in the elimination of operation equipment and expense for labor, power

we give you complete information as to equipment cost by your samples or blue prints up to 2¼" diameter.

Ask for the book entitled "One Thing at a Time is too Slow"—shown on page 3, this issue of Hitchcock's List.

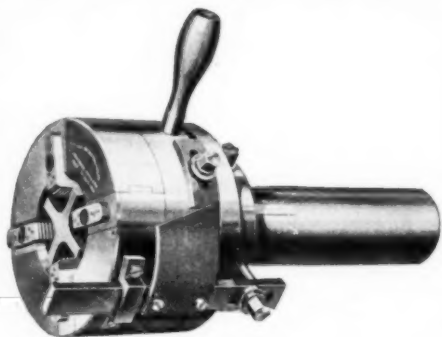
NEW YORK
BOSTON
CHICAGO
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ATLANTA
MONTREAL

**THE NATIONAL-ACME
MANUFACTURING CO.
CLEVELAND**

EUROPEAN REPS:
SCHUCHARDT & SCHÜTTE

AUSTRALIAN REPS:
BENSON BROS. & SYDNEY

The Geometric



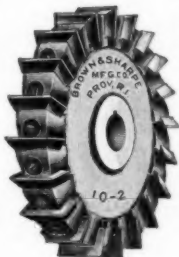
Taper Threading Die Heads

Are made to order, for all forms
of special taper threading. For
use on hand turret lathes.

*Send samples or drawings of your work
and let us make you a quotation.*

The Geometric Tool Company
New Haven, Conn.

They Withstand Severe Service



For this reason

**B. & S.
Milling
Cutters
with
inserted
teeth**

are particularly economical. The teeth are of high speed steel, unless otherwise ordered, and are held in place by taper bushings and screws. They can, therefore, be easily adjusted or removed.

*Cutters of this
style are made
to order in any
size,*

*Prices on
application*



Brown & Sharpe Mfg. Co.
Providence, R. I., U. S. A.

New Rockford No. 2 Plain Miller Heavy Duty, Automatic Feeds



With our patented support for overhanging arm, and made like all our milling machines to take attachments fastened to flange above spindle, this 3,600 lb. tool has unusual rigidity and cutting capacity. Double back geared; extra wide bearings thruout; 18 speeds; 14 feeds; range: 28x8x19 in.

Its efficiency will come up to your highest demands. Write us so we can tell you more about this Massive Miller.

ROCKFORD MILLING MCH. CO., Rockford, Ill.

In A Class By Itself

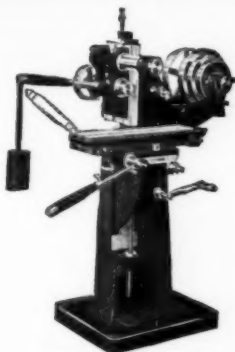


Is our New Model Bench Miller; because, we furnish with the machine our Quick Operating Lever Vise, also Index Centers and two speed friction countershaft.

Send for circular

The Carter & Hakes Co.
West Winsted, Conn., U. S. A.

AGENTS—Marshall & Huschart Mchry. Co., Chicago, St. Louis, Indianapolis; Mott & Merryweather Mchry. Co., Cleveland, Detroit, Cincinnati, Pittsburg.



"Whitney" Hand & Weight (feed) Milling Machine

Wide range with simple construction.

Greater Power than can be obtained on any other Hand Milling Machine of an equal size.

Vertical and Horizontal Feeds are independent. This feature permits work to be held close to the table and makes the Machine a Profiler.

The Spindle Head has Vertical Lever Feed and is accurately counterbalanced.

As the Vertical Lever Feed is independent from the Table and the Head accurately counterbalanced, light Milling may be done on long or heavy pieces without danger of breaking cutters.

The Spindle is driven by Interchangeable Side Driving pulleys, which, in connection with three Grade Cone on Back Shaft, gives six Spindle Speeds.

The Table has Hand Lever Feed, also Crank Feed operated by Rack and Pinion.

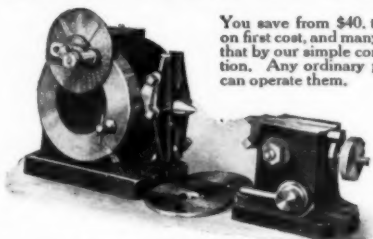
The Pinion shaft is mounted in an eccentric bushing to allow for adjustment of pinion with rack.

Weight attachment is furnished for feeding both Head and Table automatically.

Catalog No. 10 Gives Full Particulars.

The Whitney Manufacturing Co.,
233 Hamilton St., Hartford, Conn.

10-Inch Universal Index Centers Greater Profits for You

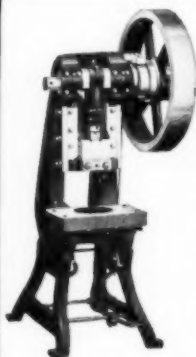


You save from \$40. to \$90.
on first cost, and many times
that by our simple construc-
tion. Any ordinary person
can operate them.

Price Only \$85 Net F. O. B. Cars
Chicago

Sold by all dealers. Write today.

Fred. C. Dickow, 35 So. Desplaines St., Chicago, Ill.



You Hustle

To get work in—don't
lose in getting it out.

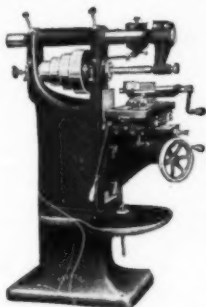
HIGH DUTY
ROCKFORD
PUNCH PRESSES

Boost Production and Cut Costs.
Power is concentrated into doing
the work **Quickly and Cheaply.**
You get more work at less cost.

Write today for Catalog

Rockford Iron Works
Rockford, Ill.

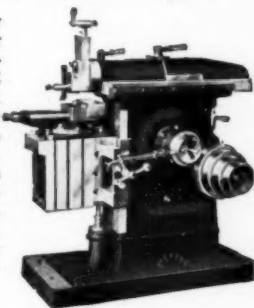
Don't Buy Any More Milling Machines



to increase your production until you have investigated the merits of a STEPTOE Hand Miller, a heavy, stiff tool that will do your small work faster than any other machine. Take the small parts off the large machine and put them on a machine built especially for that kind of work, that will cost about half, and you will have room on your larger millers for more large work.

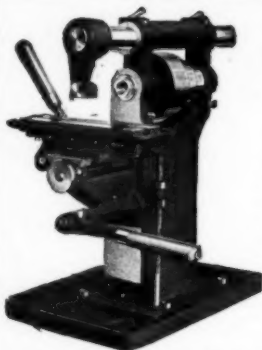
An Accurate Shaper

is a necessity in every tool room and shop for its economical operation. A STEPTOE will turn out more work than any other machine because it is easier to make all adjustments. We have behind us sixty-eight years of experience in the manufacture of honest tools. Think it over and buy STEPTOE QUALITY.



The John Steptoe Company

Station B., Cincinnati, Ohio, U. S. A.



Burke's No. 3 Bench Millers Are Seasoned Tools

Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.;
traverse feed, $3\frac{1}{4}$ in.; vertical
motion of knee, 8 $\frac{1}{4}$ in.; table
surface, $3\frac{1}{4}$ x12 inch.

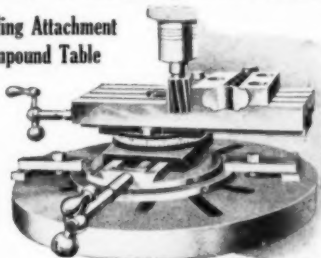
Write for Catalog, which also shows larger and smaller sizes.

The Burke Machine Tool Co.
Conneaut, Ohio

Note How Easily Attached

**Davis Milling Attachment
and Compound Table**

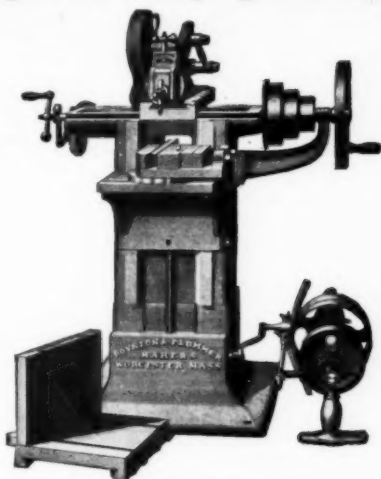
**Converts
any Drill
Press from
14 to 42-in.
swing in
2 Minutes**



THE CONVENIENCE is out of all proportion to its small cost, as it does most of the lighter milling as well as a big machine for the diemaker, patternmaker and small machine shop. Cuts keyseats, clutch jaws, slots, grooves and cams. It's an economizer of the highest class. Your address, please.

Hinckley Machine Works, HINCKLEY, ILL.

Improved Shaping Machines



6x9, 8x12 and 10x15-in. Shapers

These modern tools are particularly desirable for tool makers, die sinkers, railroad, repair and other shops where there is much short work to be done by filing or planing. They are great labor savers, and for many purposes are preferable to the much more expensive large planer.

SPECIAL

The 6x9-inch shaper, length of traverse 14 inches, with countershaft and swivel chuck, **\$160.** including plain chuck 14 inches long,

Write for Shaper Catalog, also separate Catalog of Post Drills, Bolt Cutters, Bending Machinery and Nut Tappers.

Boynton & Plummer, Inc.,
Worcester, Mass.

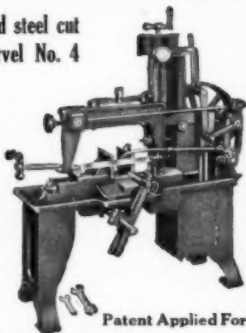
Cuts 6-in. Steel In 10 Minutes

Smaller sizes of cold rolled steel cut in proportion by the Marvel No. 4

—a high grade, improved tool with the speed, accuracy and convenience that insures bed-rock economy.

Cuts on the draw stroke and lifts free of the cut on the return. A graduated feed wheel gives any desired pressure on the saw blade.

*Also other hack saws,
punches and shears.
Write for circulars.*

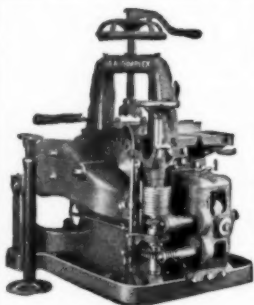


Patent Applied For

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave.
CHICAGO, ILL.

LEA-SIMPLEX

Cold Cutting - Off Saws



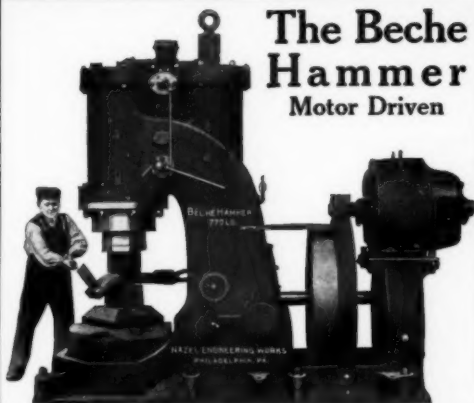
—built in four sizes with belt or motor drive, to cut round stock up to 10½" and square stock up to 9½", beams up to 18", angles, channels, rails and ingots of proportionate size.

Ask for "Collection of
Simplex Cuts."

Earle Gear & Machine Co., Philadelphia
Penna.
Successor to Lea Equipment Co.

The Beche Hammer

Motor Driven



The Heaviest, Most Powerful, Efficient and Economical Hammer of Its Size on the Market.

Hammer and Compressor Combined, No Piston Rods, Springs, Straps or Cushions.

Simple—Durable—Reliable

Powerful, non-bounding, squeezing blow. Positive, flexible control. Long stroke. Variable blows at will. No adjustments. Dies at any angle. Belt drive, no countershaft. Motor drive, geared direct.

Sizes and Efficient Capacities of Beche Hammers

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
2" dia.	4" dia.	5" dia.	7" dia.	8" dia.	9" dia.

Write for Catalogue and Prices

Nazel Engineering & Machine Works

Sole Builders for United States and Canada

5th and Luzerne Sts. - - Philadelphia, Pa.

Material Saved Pays For Machine

Peter Bros. Ball Bearing Abrasive Metal Cutter

—does the quickest, smoothest and cheapest cutting of high speed and other hardened steels, broken taps, reamers, drills, forming tools, as well as tubes, rods, or bars of brass, copper or aluminum. The thin wheel cuts the hardest steel so quickly that the temper is not drawn.

8" Size, \$16.50, with Countershaft.

Splendid for tool room. Cuts high-speed steel up to $\frac{7}{8}$ -in. square.

12" Size, \$42., with C. S.

Cuts up to $2\frac{1}{4}$ -in. diameter, round or square, at any angle up to 45 degrees.

15 Days' Trial

Write your dealer, or to us.

PETER BROTHERS MFG. CO.

115 Railroad St., Algonquin, Ill.



A 12 Inch Saw, \$125.

Screw Feed and Ball Bearing Thrust

Cuts 3x5 or
1-2x9 inch.

Power Friction
Feed.

Automatic
Knockout.

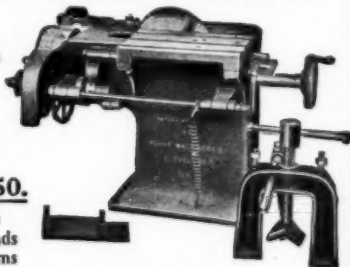
Large Clamp-
ing Table.

20-in., \$250.

CAPACITY:

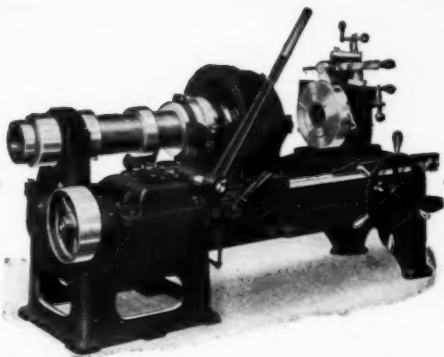
5 $\frac{1}{2}$ Inch Rounds

12 Inch I Beams



Write for full particulars; they're interesting

The Burke Machine Tool Co.
Conneaut, Ohio



B. & K. Power Pipe Machines

Cut and Thread Pipe from $\frac{1}{4}$ to 18 in.

These improved machines have 30 years of experience built into them. Our 17 styles and sizes have been tried out on all kinds and sizes of pipe, which enables us to advise you just what machine will meet your needs.

Every B. & K. makes clean, reliable threads, and any degree of accuracy may be obtained, as they are adjustable to the 1-1000 part of an inch. They stand up to the hardest kind of work, day in and day out, and may be handled without gloves. Belt or motor drive.

***Buying B. & K.'s is not an experiment—
it's sure satisfaction and the highest
economy. Write for catalog.***

**Bignall & Keeler Machine Works
Edwardsville, Ill.**



Cut Down That Overhead

Increase your profits by decreasing your losses. Learn the actual cost of operations and production on Stamping Presses, Punches, Screw Machines, etc., by installing

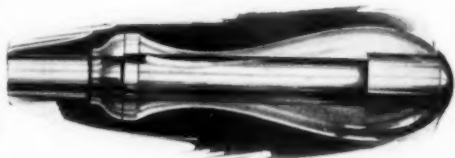
Durant Counters

The largest and brightest figures—easiest reset—accurately built. Our broad line contains the right machine for your needs. We will send one or more on thirty days' trial. Test them out for yourself.

"They Pay Their Way"

Send for Catalog No. 19.

THE W. N. DURANT CO., Milwaukee, Wis.



Quick Action

This is what we call this new Machine Handle. Attached to any power tool, especially the heavier types; adjustments are made with more speed and less effort.

All kinds of standard and special Handles from steel for power tools and similar purposes.

Send for Catalogue and prices

The Cincinnati Ball Crank Co.
Oakley, Cincinnati, Ohio

A Boiling Solution of Sal Soda

At a Cent a Gallon

Will clean small machine parts as quickly and as thoroughly as gasoline, and no risk of fire or explosion.

Is Not The Safety And The Saving Worth While?



And the process is as simple as it is quick and cheap. The parts are placed in the basket and immersed for a moment in the solution, coming out en-

tirely free from grease and dirt, and so hot that they dry in a minute or two. Our kettles are heated with a Bunsen gas burner, which makes them perfectly portable. They cost less to buy and

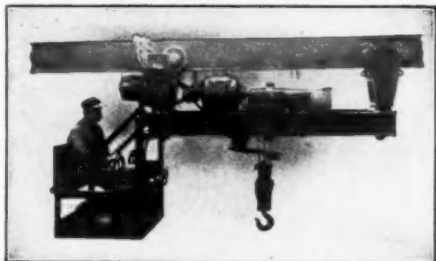
operate than steam kettles, and haven't the latter's troublesome valves, pipes, traps and fittings.

Made in 10 and 30 Gallon Sizes

Let Us Give You More Facts

Gray & Prior Machine Co.
Hartford, Conn.

Mono Rail Hoists and Over Head Track Systems



A 5-ton hoist operated from cab or floor for transferring material from one building to another, unloading cars, general yard work, etc. Mono Rail Hoists and trolleys of all types.

Nothing too large or too small for our careful, prompt attention

The Euclid Crane & Hoist Company
Euclid, Ohio

**Anything broken in almost any metal
is made good as new by a
“Vulcan”**

Oxy-Acetylene Welding and Cutting Plant

Not the cheapest, but most efficient known.

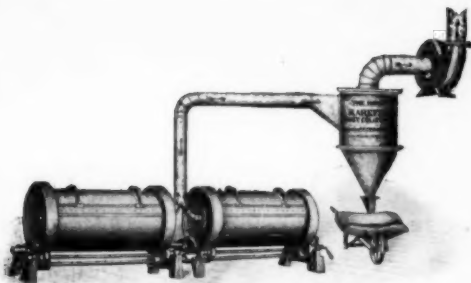
Highest grade apparatus with special patented features, \$100.00 and upwards.

Write today for book “A” on welding

Vulcan Process Company

Minneapolis, Minn.

Cincinnati, Ohio



Why Do They

Use So Many Morse Dust Collectors?

Because they do better work.

Because they last longer.

Because the cost price is low.

Because they cost less for upkeep and repairs.

Weston-Mott Co., Flint, Mich.....	8
General Electric Co., Schenectady, N. Y.....	6
Oliver Chilled Plow Works, South Bend, Ind.....	8
Fort Wayne Electric Works, Fort Wayne, Ind.....	5
Buick Motor Co., Flint, Mich.,.....	4
Studebaker Corporation, So. Bend, Ind.....	4
Willis-Overland Co., Toledo, Ohio.....	5
Oberdorfer Brass Co., Syracuse, N. Y.,.....	4
Sutton, Steele & Steele, Denver, Colo.,.....	5
Stover Engine Co., Freeport, Ill.,.....	4
Pittsburg Plate Glass Co., Pittsburg, Pa.,.....	5

Our Booklet contains the complete story.

*It will pay you to read it. Let us have your address
and the requirements of your plant.*

The Knickerbocker Company
Jackson, Mich.



Find Out!

Vulcanized Fibre for Machine Parts

may be much better and cheaper
than the materials you are using,
and it's worth investigation.

Let us figure on these parts for your machines:

Gears
Frictions
Washers

Bushings
Thrust Washers
Guide Collars

Discs
Handles
Etc., Etc.

Or send us blue prints or samples of special parts.

Write for Catalog, which tells the story of the original Vulcanized Fibre and its uses, and contains price list on stock parts, sheets, tubes and rods.

American Vulcanized Fibre Co., Wilmington, Delaware.



Non-Breakable

In any combination of
stationary or
swivel jaw
or base.

Because designed only after repeated breaking tests

We Broke

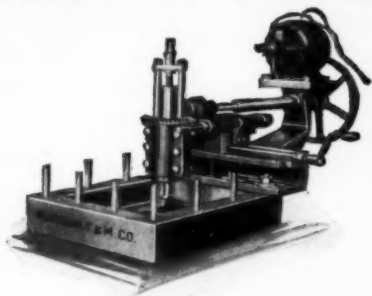
them until we had eliminated all the weak points, and then put them on the market—*absolutely guaranteed against breakage.*

Reed Vises are made of the best material, and machined so accurately that the fit of each part is permanent.

*Vise Service—plus—is built into every one, from
12½ to 324 lbs. Send for booklet today.*

REED MANUFACTURING CO., - Erie, Pa.

Take it to the Job



For facing valve seats or any milling work in position, our new Portable Milling Machine is the handiest time-saving tool in the shop.

It may be attached to anything and operated by hand, belt or motor.

The machine weighs less than 200 lbs., but the construction is strong and above all, *durable*. Half your time isn't spent making repairs to small gears and weak parts.

While thinking about it, send for our bulletin which tells more than we can here.

Remember us for Portable Machinery, Cylinder Boring Bars, Crank Pin Machines, Pipe Benders—all new design and modern.

Pedrick Tool & Machine Co.
3644 N. Lawrence St., Philadelphia



**We Make A Complete Line of
Drop Forged Wrenches**

All Kinds—All Sizes in Stock

Catalog for the asking

Armstrong Bros. Tool Co.
 "The Tool Holder People"
 308 N. Francisco Avenue,
 Chicago, U.S.A.

Allen Safety Set Screws



Send for circular No. 13 and sample screws (for testing).

ALLEN MFG. CO., - Hartford, Conn.

Tucker's Safety First



Closed



Open
Style A

Oil Hole Covers
Require but one hand to pump in the oil. Adapted to all kinds of mechanism having oil holes leading to a bearing.

*Send for Catalogue
Oil Hole Covers
and Compression
Grease Cups*



Style C



Style E

Style F, Drive



Style D



Open



Closed



Compression
Grease Cup



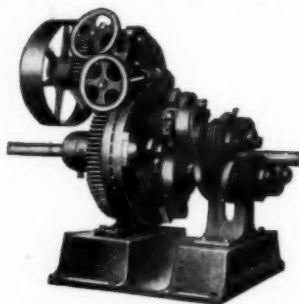
Style B

Rotary Head

W.C. & F.C. TUCKER, Hartford, Conn.

Cleans 8 to 10 ft. of Flue a Minute

Without Injuring the Flue



THIS ROTARY FLUE CLEANER removes the hard, adhering crust of lime from boiler flues at a great saving of time and cost over any other method. Many of the big railroads are using it with uniform success and satisfaction. The tool steel cutters are arranged to give a little in oval places or with uneven diameters. The machine is easily reversed, and a thorough cleaning is assured under all conditions, with almost no noise and but little dust. It is designed for heavy duty, and is of ample strength and high grade construction throughout. It cleans flues from 1½ to 3 inches in diameter, and is operated by ordinary labor.

Send for our descriptive Circular and Catalog. Our line of PORTABLE TOOLS is very complete and they are wonderful economizers of time and labor. Why not use them?

H. B. Underwood & Company

Established 1870

1016-22 Buttonwood St., Philadelphia, Pa.

Second-Hand Machinery.

Lists of second-hand machinery, either for sale or wanted, will be published under this heading at the rate of **40 cents a line**, across the page, each issue, with a minimum charge of **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for.

Write directly to the parties offering the machines for sale for prices and full descriptions. If you do not find what you require, use the slip inclosed with each book to make known your wants to the publisher.

FOR SALE BY

New Haven Manufacturing Co.,

New Haven, Conn.

We have for sale the following second-hand tools, which are now in use, of modern type and in first class condition, with full and complete equipment:

Boring mills, vertical, 42, 44, 52, and 60", with two heads.

Drills, upright, 28" and 40".

Lathes, 18" to 28" swing, 8' to 14' long.

Planers, 24, 28, 34 and 40" square, 6' to 30' long.

FOR SALE BY

W. L. Perkins Machinery Co.

30 Church St., New York

LATHES.

13"x5' P. & W., p. r. & f. taper att.

16"x10' P. & W., p. r., hol. spdl.

20"x8' Pond, compound rest.

24"x8' Harrington, compound rest.

24"x12' Fitchburg, compound rest.

30"x14' Fitchburg, compound rest.

MISCELLANEOUS.

Boring mill, vert., 30" Bullard, tur. hd.

Grinder, universal, 10"x30" Walker.

Milling mche., pl., No. 5-C Becker-B.

Milling mche. univ., No. 3 Becker-B.

Miller, lab., 30"x30"10' Ingersoll.

Pipe machine, 34" Saunders.

Planer, 24"x24"x7' New Haven.

Planer, 32"x32"x8' Pond.

Shaper, 14" Juengst, horiz., crank.

Shear, 38" throat.

FOR SALE BY

The Osborne & Sexton Machinery Co.,

Columbus, Ohio.

LATHES.

13"x5' Reed, hollow spindle.

14"x8' thoroughly rebuilt.

15"x5' Putnam, compound rest.

15"x5' Putnam.

15"x6' Wood-Light, (2).

20"x12' cab. legs, rebuilt.

21"x14' Fifield.

18"x10' Pond, overhauled.

28"x48"x13' centers, Harrington.

36"x14' Schumacher & Boye.

SHAPERS AND PLANERS.

16" Smith & Mills.

11" Gould Bros.

30" Morton, draw cut.

32x32x6' and 8' both Gray's.

TURRET LATHES AND SCREW MACHINES.

22" Fay chucking, q. c. (2).

18" chucking lathe.

18" American Fox.

18" Pratt & Whitney turret.

16" Warner & Swasey, auto. chuck,

wire feed, (2).

12" Pratt & Whitney screw machine.

Cleveland automatics, (3).

DRILLING MACHINES.

22, 24 and 30" Hamilton.

4-spdl. Niles, 2" capacity.

Foot-Burt 4-spdl. multiple.

Foot-Burt 24" heavy duty.

4 spindle sensitive gang, (2).

5' Universal radial.

MISCELLANEOUS.

Cold saw, Lucas, 8" stock.

Hammers, fric. bd., 3,000, 4,000 & 5,000 lbs.

Hammer, helve, 50 lb. Bradley type.

Keyseater, No. 2 Baker.

Miller, No. 2 Kempsmith, div. hd.

Press, drawing, Q. & C. 4500 lbs.

Press, o. b., No. 3 Crosby.

Rolls, Toledo, shovel blanking.

SECOND-HAND MACHINERY.

FOR SALE BY

**The H. A. Stocker Machinery Co., 566-72 W. Randolph St., Chicago
610 Merrill Building, Milwaukee, Wis.**

LATHES.

- | | |
|---|---------------------------------|
| 14"x6' Hendey, pan bed, draw spindle, taper att., tool room outfit. | 19"x8' Reed, compound rest. |
| 14"x6' Prentice, geared head. | 20"x10' American, q. c. g. |
| 14"x6' LeBlond, compound rest. | 24"x14' Bradford. |
| 16"x6' Lodge & Shipley. | 36"x12' Bradford. |
| 16"x7' Blaisdell, comp. r. and taper. | 30"x12' Flather, compound rest. |
| 18"x8' Fairbanks, c. r. and taper. | 32"x14' Putnam, compound rest. |
| 18"x10' American, q. c. g. | 32"x18' Pittsburg, d. b. g. |
| | 49"x 18' Fifield, with chuck. |

SHAPERS.

- | | |
|------------------------------------|---------------------------------|
| 6" Boynton & Plummer. | 20" Gould & Eberhardt. |
| 8" Pratt & Whitney, crank. | 24" Milwaukee, A1. |
| 16" Gould & Eberhard, b. g. crank. | 26" Putnam, geared, belt shift. |
| 16" Davis & Egan. | 24" Gould & Eberhardt. |

PLANERS.

- | | |
|---|-------------------------------------|
| 22x22x5 Whitcomb, good order. | 36x36x12 Gray, 2 heads. |
| 34x24x5 Wilson. | 40x38x14 Putnam, old style, low pr. |
| 36x26x8 Whitcomb, (new, reduced price.) | 42x42x14 Detrick & H., open side. |
| 30x30x10 Flather, 3 heads. | 44x44x12 Pond, 2 heads. |

GRINDERS.

- | | |
|--------------------------------------|---|
| No. 1 Cincinnati, universal. | No. 2 Bath, universal. |
| No. 1 Morse plain, 2"x20". | No. 2 Brown & Sharpe, surface. |
| 16"x66" Landis. | No. 2 B. & S., surface, with Walker magnetic chuck. |
| No. 2 Norton, univ. cutter and tool. | |

MILLING MACHINES.

- | | |
|-------------------------------------|---------------------------------------|
| No. 0 Van Norman, duplex. | No. 2 Kempsmith plain, vert. head. |
| No. 3 $\frac{1}{2}$ Waltham, bench. | No. 2 B. & S. universal. |
| No. 6 Whitney hand miller. | No. 20 Oesterlein universal. |
| No. 5B Becker, vertical. | No. 5 Hendy, Lincoln pattern. |
| No. 13 Garvin, plain. | No. 4 Garvin angle spindle, profiler. |

UPRIGHT AND RADIAL DRILLS.

- | | |
|-----------------------------------|--|
| 2' Fosdick, with tap. attach. | 18" Henry & Wright, ball bearing. |
| 4' Fosdick, with tap. attach. | Sellers double column drill, 72" between uprights. |
| 3' arm, Cincinnati, plain radial. | 42" Prentice Bros. |
| 4' arm, Bausch post radial. | 25" Prentice Bros., sl. hd., b.g., p.f. |
| 5' arm Western universal radial. | |

POWER PRESSES AND PUNCHES.

- | | |
|---|---|
| No. 4 Consolidated inclinable. | No. 18 Bliss. |
| No. 3 Am. Can Co. inclinable. | No. 10 $\frac{1}{2}$ Badger, combination. |
| No. 2 Consolidated inclinable. | No. 4 $\frac{1}{2}$ E. Rudolphi & K. arch press. |
| No. 1 Consolidated inclinable. | No. 3 Walsh. |
| No. 166C Consolidated straight sided, geared. | No. 430 McDonald dbl. cr. o. b. pr. |
| No. 5 Bliss fly wheel punch press. | Humphrey single end punch, 36 in. throat, cap. 1 $\frac{1}{2}$ " in 1". |
| No. 5-A Toledo, comb. geared. | Style "C" Cleveland single end punch & shear. |
| No. 3 $\frac{1}{2}$ Bliss toggle press. | No. 5 L. & A. sgl. end punch & shear. |
| No. 3 Bliss double crank press. | |

SCREW MACHINES AND TURRET MACHINES.

- | | |
|---|---|
| No. 2 Foster screw machine, with independent stops. | No. 51 National-Acme automatic. |
| 4x4 $\frac{1}{2}$ P. & W. new model sc. mach. | No. 60 B. & S. automatic. |
| No. 1 Garvin screw machine. | 4- $\frac{1}{2}$ " Cleveland automatic. |
| 14" Warner & Swasey. | 14 Turret Lathes, small sizes. |
| | 14" Brown & S. screw machine. |

BORING MILLS—VERTICAL AND HORIZONTAL.

- | | |
|---|-----------------------------|
| 76" Bullard, boring and turning. | 37" Niles, 2 heads. |
| 42" Bullard, 1 swivel hd., 1 tur. head. | 34" Colburn, swivel turret. |

GEAR CUTTING MACHINES.

- | | |
|-----------------------------------|--------------------------------|
| Reynolds hobbing machine. | 30" Flather, spur only. |
| 42" Gould & Eberhardt, spur only. | 36" Brown & Sharpe, spur only. |

SECOND-HAND MACHINERY

The H. A. Stocker Machinery Co.—Continued.

MISCELLANEOUS.

Bolt cutter, 6" Acme, dbl. rapid hd.	Cold saw, No. 4 Birdsboro, with 6 extra saws.
Bolt cutter, 1" Haberle dbl. head.	Cutting-off mch. 4" Hurlburt & R.
Bolt cutter, 1" Adams, dbl. head.	Hammer, drop 500 lb. Standard auto.
Bolt cutter, 1 1/2" Schlenker, sgl. hd.	Hammer, power, No. 2 Beaudry.
Bolt header, 1 1/2"	Hammer, steam, 100 lb. American.
Bulldozer, No. 5 Ajax.	Hammer, steam, 800 lb. Morgan.
Cold saw, No. 3 Cochrane & Bly.	

FOR SALE BY

Chas. Molitor Machinery Co.,

215 S. Clinton St., Chicago, Ill.

Arch press, 48", double crank, hvy.	Lathe, 15" Lodge & Shipley.
Arch press, 72", light pattern.	Lathe, 20"x10' Springfield.
Boring mill, 32" Flather.	Lathe, 20"x10' Walcott.
Broaching machine, No. 4 Lapointe.	Lathe, 33"x12' Prentiss.
Draw presses, Bliss, Ferracute. (4).	Planers, 6' to 12', (3).
Drills, adjustable spindle, 4" and 8".	Punch press, V. & O. No. 3.
Drill chucks, \$5,000 worth, 5-32 to 1".	Shapers, 14" to 32", (8).
Fox turret lathes, (10).	Square shears, 1-16", 6-8'.
Keyseater and slotter.	Turret lathes and screw machines,
Lathe, 12" LeBlond.	Warner & Swasey and Acme.
Lathe, 15" Bradford.	1-2 1/2" (12).

Tinners' rollers, brakes, shears, punch presses and compressors.
100 other iron and woodworking machines, motors, etc.

FOR SALE BY

A. D. White Machinery Co., - 108-114 N. Jefferson St., Chicago

LATHES.

13"x 5' P. & W., taper and chucks.	24"x10' Lodge & Shipley, q. c.
15"x 8' Von Wyck.	28"x12' Fifeild.
16"x 6' Fay & Scott.	28"x25' Putnam.

DRILL PRESSES.

14" Barr sensitive, (3).	36" Bickford radial.
28" Bickford, sliding head.	36" American radial.
30" Kerkhoff, sliding head.	40" Aurora radial.
32" Bickford, sliding head.	48" Cincinnati Bickford universal.

PLANERS.

24"x 6' Pond.	28"x 8' Gray.
26"x 6' Gray.	32"x 8' Betts.
26"x 8' Gray.	38"x10' Gray.

SCREW MACHINES AND TURRET LATHES.

16" No. 3 Pearson screw machine.	No. 2 Garvin screw machine.
No. 2 1/2 P. & W. screw machines, (2).	13" Dreeses turret lathe.
1/2" Cleveland automatic.	22" Lodge & Shipley turret lathe.
1/2" Pratt & Whitney automatics, (4).	21" Gisholt, big bore.

PUNCH PRESSES.

No. 2 Ferracute.	No. 4 1/2 R. & K., o. b. i.
No. 16 Wold.	No. 45 Crosby, open back, (2).
No. 5 Niagara, o. b. i.	No. 3 Ferracute, double action.

MISCELLANEOUS.

Blowers, No. 1/2 Garden City, (2).	Miller, plain No. 9 Kemp Smith.
Bolt cutter, 1 1/2" National, single hd.	Miller, univ. No. 24 Oesterlein.
Bolt cutter, 3" National, single hd.	Miller, manufacturing. Grant.
Grinder, cutter, H. G. Barr.	Pipe machine, 2" Jarecki.
Grinder, Yankee drill, style "B".	Shaper, 14" P. & W., univ. vise.
Grinder, disc, No. 1 Besly.	Shaper, 16" Smith & Mills.
Hammer, power, 50 lb. Dienelt.	Shaper, 24" Gould & Eberhardt.
Keyseater, 16" Morton, portable.	Tapper, No. 2 Garvin horiz.
Miller, plain No. 12 Garvin.	

SECOND-HAND MACHINERY

FOR SALE BY

Prentiss Tool & Supply Co., New York, Boston, Buffalo, Syracuse.

BORING MILLS.

38" Bullard, vertical, turret.
6" Pond, vertical, 2 heads.
9" Pond, vertical, 2 heads.

86" Bullard, vertical, 2 heads.
No. 2 Rockford, horizontal.
No. 5 C Binsse, horizontal.

DRILLING MACHINES.

1 sp. Allen, high speed.
3 sp. Avey, high speed.
3 & 4 sp. Henry & Wright.
1 & 4 sp. Taylor & Fenn.

25", 28" & 30" Snyder, sliding hd.
No. 1 Baker, high speed.
30" & 36" Bickford radials.
42" Hamilton radial.

GRINDERS.

No. 60 Heald, cylinder.
No. 70 Heald, internal.
No. 210 Heald, ring.

6x32, 14x72 and 18x168, Norton, cylindrical.
2½ C Bath, universal.

MILLING MACHINES.

Nos 1, 1½ & 2 Cincinnati, universal
No 2 LeBlond, universal.
No. 1 Brown & Sharpe, univ
No. 1 Milwaukee, universal.

No. 5 Brown & Sharpe, plain.
Nos 5 & 5-B Becker, vertical.
No. 24 Brown & Sharpe plain.
No. 4 Cincinnati, plain.

LATHES.

12' x 6" Hendey, compound rest, taper attachment.
14' x 6" Lodge & Shipley, compound rest, power cross feed.
16' x 6" Lodge & Shipley, patent hd.
16' x 8" Prentice Bros., compound rest, power cross feed
16' x 7" Hendey quick change.
16' x 9" Putnam, compound rest.

16' x 8" LeBlond, quick change.
18' x 8" Prentice Bros.
18' x 8" LeBlond, quick change
18' x 10" Hendey quick change.
21' x 14" Porter, compound rest.
26' x 16" Pittsburgh, quick change.
26' x 26" Newark, compound rest.
44' x 18" Fifeild, heavy.

PLANERS.

15' x 15' x 3' Pratt & Whitney
24' x 24' x 6" Gray 1 head.
30' x 30' x 10" Bement 2 heads
16' x 36' x 8" Pond, 1 head.
36' x 16' x 12" Lodge & Davis, 2 hds.
18' x 18' x 12" Gray, 2 hds.
42' x 42' x 14" Pond, 2 heads.

48' x 48' x 10" Powell, motor drive.
42' x 42' x 14" Woodward & Powell, 4 heads.
60' x 50' x 10" Gray, 2 heads.
71' x 69' x 14" Pond, 2 hds.
84' x 84' x 20" Niles, 3 hds.

HAMMERS.

25 lb. Dupont, trip.
50 lb. Bradley, trip.

1200 lb. Billings, drop.
1000 lb. Pratt & Whitney, drop.

PRESSES.

No. 4 Mossberg & Granville.
No. C-82 Ferracute, notching

Nos. 3 & 3½ Bliss, toggle.
E 12 Ferracute, inclined.

SCREW MACHINES.

1' x 10" P. & W., wire feed.
14' x 9" Acme, wire feed.
2x24 Jones & Lamson, bar and chucking.
No. 2, 1" Garvin, wire feed.
No. 2 P. & W., wire feed.
No. 2½ P. & W., wire feed.
No. 6½ Bardons & O., wire feed.

No. 4½ Bardons & O., wire feed.
21" & 24" Gisholt.
24" American, heavy.
Nos. 53 & 55 National-Acme auto.
24" & 34" Gridley auto.
1, 1½ & 24" Cleveland auto.
1, 1½ & 24" Cleveland auto.

SHAPERS.

8" Gould & Eberhardt.
16" Gould & Eberhardt.

24" Gould & Eberhardt.
26" Gould & Eberhardt.

MISCELLANEOUS.

Angle shear, 6" Hilles & Jones.
Broaching machines, Nos. 3 and 4 LaPointe.
Cold saw, Higley.
Filer, Cochrane-Bly.
Gas blowers, Nos. 1, 3 & 4 American.
Gear cutters, 16", 24", 36" and 48" Gould & Eberhart.

Gear cutter, 36" Cincinnati.
Pipe machine, 4" Saunders.
Pipe machines, 3", 4" and 8" Jarecki.
Punch and shear, Hilles & Jones.
Riveter, Greiner.
Screw slotter, National-Acme.
Slotters, 10" and 18".
Stake riveter, 50" Rock River.

SECOND-HAND MACHINERY

FOR SALE BY

Rumely-Wachs Machinery Co., 121 N. Jefferson St., Chicago, Ill.

ENGINE LATHES.

16"x 6' Hamilton, q. c.	22"x10' Fifeild.
16"x 8' American, q. c. taper.	24"x10' Schumacher & Boye.
16"x 8' Prentiss.	24"x24' Fifeild.
18"x 8' Reed.	26"x10' American.
18"x 8' Hamilton.	36"x12' Schumacher & Boye.
18"x10' Rahn-Carpenter.	36"x14' Fifeild.
20"x 9' Draper.	38"x18' Fifeild.
21"x10' Bradford.	50"x22' Fifeild, triple geared.

UPRIGHT DRILLS.

20" Davis.	31" Barnes, sliding head.
22" Lodge & Davis.	36" Foote-Burt, heavy duty.
22" Prentiss.	40" Lodge & Davis, sliding head.
23" Rockford, sliding head.	24" Baker Bros. heavy duty, compound table.
28" Sibley & Ware, sliding head.	
28" Barnes, sliding head.	

Also large lot of Sensitive and Bench Drills.

RADIAL DRILLS.

3' Fosdick, plain, tapping att.	5' Prentiss, plain.
4' Fosdick, plain, tapping att.	5' Bickford, plain.
44' Bickford, plain.	

SHAPERS.

15" Hendy, friction.	16" Stockbridge.
16" Juegst crank.	17" Kelly, crank.
16" Acme b. g. crank.	20" Cincinnati, b. g. crank.
Milwaukee, b. g. crank.	

PLANERS.

24"x24"x 6' Pond.	36"x36"x 8' American, two heads.
26"x26"x 6' Flather.	36"x35"x15' Woodward & Powell
30"x30"x 8' Putnam.	frog and switch planer.
36"x36"x 8' Geneva.	

MILLING MACHINES.

No. 2 Brown & Sharpe, plain.	No. 3 Newton, plain.
No. 2 Kempsmith, plain.	No. 3 Pratt & Whitney, plain.
No. 2-H Brown & Sharpe, plain.	No. 3 Becker, vertical.
No. 3 Kempsmith, plain.	No. 4 Becker, vertical.
No. 3 Cincinnati, plain.	No. 4-B Becker, vertical.

SCREW MACHINES.

No. 1 Brown & Sharpe semi auto.	1" Acme.
No. 1 Garvin, $\frac{1}{2}$ ".	No. 124 Garvin, power feed.
No. 2 Bardons & Oliver.	No. 6 Warner & Swasey, $2\frac{1}{2}$ ".
1" Foster & Kimball.	$\frac{1}{2}$ " Pratt & Whitney, full auto., (3).
1" Pratt & Whitney, power feed.	

TURRET LATHES.

No. 3 Bardons & O., Fox Monitor.	21" Gisholt.
2x24" Jones & Lamson, (2).	No. 224 Garvin.
18"x 6' Lodge & Davis, (2).	24" Conradson.
18" Windsor.	25" Warner & Swasey.

PRESSES.

No. 18 Bliss, o. b. i.	No. 4 Walsh, comb. geared.
No. 19 Bliss, o. b. i.	No. 12-A Adriance, drawing.
No. 6 American, o. b. i.	No. 2 Billings & Spencer, trimming.

MISCELLANEOUS.

Arbor press, No. 4 Eames.	Keyseater, No. 3 Mitts & Merrill.
Gas engine, 6 h. p. Kneeland.	Keyseater, No. 3 Baker Bros.
Gear cutter, 26" B. & S. No. 3 auto.	Profiler, No. 4 Garvin.
Gear cutter, 48" B. & S. No. 4 auto.	Punch, Kling Bros. 19" throat, $\frac{1}{4}$ " capacity.
Grinder, 10x50 Norton.	Thread miller, 6x48 Pratt & Whitney.
Keyseater, No. 2 Mitts & Merrill.	

Write for complete List just issued.

SECOND-HAND MACHINERY

FOR SALE BY

The Motch & Merryweather Machinery Company,
707-715 Lakeside Av., N. W., - - - Cleveland, Ohio

Branches: Detroit, Cincinnati, Pittsburg.

BOLT CUTTERS.

14" Wells Brothers, new.
 14" National, good.

2" 2-spindle Acme, first class.

BORING MILLS.

2" Lucas, cone drive.
 4" bar Bement-Miles.
 34" Colburn vertical, 3 jawed chuck.

34" Colburn vertical, plain table.
 24 & 36" v. t. l. Bullard.
 72" Pond, friction feed, good.

SENSITIVE DRILLS.

3-spindle No. 1 Avey, ball bearing.
 10" Barnes.
 12" Foote-Burt.
 12" 4-spindle Barr.
 12" 4-spindle Pratt & Whitney.

14" Foote-Burt, single-spindle.
 14" Foote-Burt 2-spindle.
 14" Foote-Burt, 6-spindle.
 14" Taylor & Fenn, single spindle.
 15" Barnes.

DRILL PRESS AND MULTIPLES.

8-spindle Moline rail drill.
 8-spindle No. 43 Garvin multiple.
 10-spindle Baush multiple, 14" drill.
 20" Baker high-sp. drill presses, (3).
 No. 1 Baker high speed, drill press,
 latest model.
 4' Baush radial, belt spdl. drive.

4' Fosdick plain, gear box.
 4' Pond plain.
 20" 2-spindle Mechanics, wheel and
 lever feed.
 32" Pond, sliding head.
 34" Pond, sliding head.

GEAR CUTTERS.

26" Brown & Sharpe, plain spur.
 33" Gould & Eberhardt plain spur.
 36" Gould & Eberhardt spur.

40" Flather, spur.
 48x12 Gould & Eberhardt.
 60" Gould & Eberhardt, plain auto.

GRINDERS.

No. 1 Leland & Falconer, wet tool.
 Eames, Worcester, Yankee and
 Heald drill grinders.
 No. 2 Leland & Falconer dbl. wheel
 wet tool grinder.
 No. 3 Diamond polishing stand.

No. 3 Landis plain grinder.
 No. 11 Brown & Sharpe, plain.
 10x36 Landis, plain.
 6"x32" Norton plain.
 18x36 Norton, plain.

LATHES.

7x32 Pratt & Whitney, precision.
 10x 5 Pratt & Whitney, tool room
 lathe, with 3-jawed chuck, taper
 attachment and collets.
 13"x6" Willard compound rest.
 13"x6" Prentice, Hendey, American
 and Lodge & Shipley.
 15"x6" Flather, taper attachment.
 16"x6" Davis, LeBlond, Lodge &
 Shipley, Flather, Reed.

10"x8" Reed, Fay & Scott, Flather,
 Lodge & Davis, Walcott & Wood,
 Schumacher & Boye.
 20"x10" Bradford.
 20"x12" Reed.
 21"x10" Johnson.
 22"x12" Reed.
 38"x26" New Haven.
 50"x18" Fifeild.

PLANERS.

16"x16"x4' Hendey.
 22"x22"x4' New Haven.
 22"x7' Gray.
 24"x8' Ohio.
 24"x8' Powell.

26"x10' American.
 28"x5' New Haven.
 30"x30"x8' Lodge & Davis.
 30"x10' Whitcomb.
 42"x10' Gray.

SAWS.

6" Atkins hack saw.
 8" Atkins hack saw.
 12" Atkins hack saw.
 6" Racine.

4" Spur, cold.
 4" Nutter & Barnes, cold.
 6" Espen Lucas, cold.

SHAPERS.

14" Steptoe, single geared.
 15" Hendey friction.
 15" Flather.
 20" Hendey.
 20" Kelly.

22" Smith & Mills.
 24" Hendey.
 24" Walcott, geared.
 34" Gould & Eberhardt, crank.

SECOND-HAND MACHINERY

Notch & Merryweather Machinery Co.,—Continued.

MILLING MACHINES.

No. 13 Pratt & W. Lincoln type.
No. 2 Brown & Sharpe, heavy plain.

No. 12 B. & S. Lincoln type.
No. 13 B. & S. Lincoln type.

TURRET LATHES & SCREW MACHINES.

1" Pratt & Whitney, with cut-off rest and automatic chuck.
2" Brown & S. hand screw machine.
No. 2 Bardons & Oliver, 2"
No. 2 Warner & Swasey, 1"
No. 2 Bardons & Oliver.

No. 4 Bardons & Oliver.
No. 2 Warner & Swasey hol. hex.
2"x24" Jones & Lamson.
No. 2 Foster pl. head turret lathe.
1"x7" Acme turret lathe.
No. 53 and 55 Acme automatic.

FOR SALE BY

Brown-McDonald Machinery Co.,

906-908-910 North Market Street, - - - St. Louis, Mo.

LATHES.

14", 16" & 18" Monarch, new, (5).
16"x 6" Hamilton.
20"x14" Bradford, h. s., cpd. rest.

22"x 8' New Haven, comp. rest.
Speed lathes, all sizes, (5).

DRILLING MACHINES.

20" Silver and Champion, new, (3).
3 & 4 spindle Reed sensitive, cap. 4".
26" Barnes, b. g., p. f., with tap. att.

36" Gang radial.
50" Sellers, b. g.

PLANERS.

18"x18"x44" Whitcomb.
30"x30"x9" New Haven.

24"x24"x7" Niles.

MISCELLANEOUS.

Brake, 10' Robinson, cap. 16 gauge.
Punch, hand, No. 15 Excelsior, capacity 4" in 4".

Hammer, air cushion, 90-lb. belt dr.
Shear, power square, 8' Berth, 16" gauge cap.

Large stock of Emery Grinders, Blowers, Punch & Shears, etc.

FOR SALE BY

Vonnegut Machinery Co., 51 S. Meridian St., Indianapolis, Ind.

LATHES.

14x6 Lodge & Shipley, patent head.

18x10 Cincinnati.

TURRET LATHES AND SCREW MACHINES.

18x6 Lodge & Shipley, power feed.

16" Acme, hand feed, plain head.

24x8 Lodge & Shipley, power feed.

14" P. & W., hand feed, f.b.g. head.

DRILL PRESSES.

A large assortment of 2, 3, 4 and 5-spindle Barr and Reed sensitive.

20" Cincinnati, with sliding head and tapping attachment.

16" Kokomo high speed.

MILLING MACHINES.

No. 2 Van Norman duplex.

No. 12 Pratt & W., Lincoln type.

No. 2 Garvin duplex.

GEAR CUTTERS AND AUTOMATICS.

12" Gould & Eberhardt gear cutter.

No. 6 Fellows gear shaper.

24" Becker-Brainard gear cutter.

14"x15" Cleveland automatic.

SHAPERS AND KEYSEATERS.

14" Gould & Eberhardt shaper.

No. 2 Giant keyseater.

No. 00 Colburn keyseater.

GRINDERS.

No. 22, 12x32 Landis, plain.

No. 1-B Besly disc grinder.

No. 23, 12x42 Landis, plain.

No. 10-B Besly disc grinder.

No. 200 Heald ring grinder.

18" Gorton disc grinder.

No. 210 Heald ring grinder.

MISCELLANEOUS.

Beader, 24" No. 0 Niagara.

Piston ring parting mche., Ackley &

Centering mche., 2-spdl. Whitney.

Abbey, square lap.

Cold saw, No. 1 Cochrane-Bly.

Squaring shear, 36" Niagara, power.

Cutting-off machine, Matson.

Tapping mche., No. 1 Garvin, auto.

Gas furnace, No. 35 Stewart.

SECOND-HAND MACHINERY

FOR SALE BY

Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.

RADIAL DRILLS.

Prentice Bros. 5' and 6' radial drills, equipped with belt or motor drive, \$450.00 and \$475.00 each.

LATHES.

32"x10' Pond, complete.
28"x12' Blaisdell, complete.
24"x12' Reed, complete.
24"x12' Lodge & Shipley.

22"x14' Bullard, complete.
18"x8' Lodge & Shipley, taper att.
16"x8' Greaves-Klusman, speed box.
14"x7' Lodge & Shipley, complete.

TURRET LATHES AND SCREW MACHINES.

40" Gisholt turret; Pratt & Whitney, with tool equip'm't; 24" Davis chucking lathe; No. 2 Warner & Swasey, and other turret lathes and screw machines.

BORING MILLS.

30" Bullard vertical.
36" Niles vert. with 2 heads.
38" Bullard vert. with 2 heads.

44" Rodgers & Hemphill vert. with two heads, all with speed boxes.

MISCELLANEOUS.

Drill presses, all sizes.
Gear shapers. 36" Fellows.
Grinder, universal, Oesterlein.
Grinders. B. & S. and Landis, modern.
Milling machines, vertical.

Milling machines, plain and univ.
Planers, all sizes.
Punch presses.
Punch and shr. comb., No. 4 Perkins.
Steam hammers, etc., etc.

These machines are modern and late type. Send for our list.

FOR SALE BY

Baird-O'Hara Company, 54-56 Jefferson Ave., Detroit, Mich.

Attractive prices will be quoted.

For convenience refer to the number of article.

ENGINE LATHES.

873-F 14"x8' Whitcomb-Blaisdell dbl. bk. grd., comp. rest with chuck.
113-F 16"x8' Prentice dbl. back geared, comp. rest with chuck.
1145-F 18"x8' Cincinnati, compound rest and chuck.
858-F 20"x8' Flather, compound rest and chuck.
1132-F 22"x11' Lodge & Davis, compound rest.

MILLING MACHINES.

855-F No. 3 Garvin, duplex.
898-F No. 3 Kempsmith plain.
260 No. 21 Garvin, plain.
1126-F No. 6½ Becker-B. Lincoln.

251 No. 1 Warner & S. vertical.
268 No. 3 Garvin, hand, overhang-
ing arm, vise and vertical fixture.

SENSITIVE DRILLS.

152 10" Burke, swinging tbl. and
chuck
164 10" Barnes, friction disc.

158 12" Foote-Burt, 3 spindle.
157 14" Foote-Burt, 2 spindle.

UPRIGHT DRILLS.

985-F 20" Rockford, wheel and lever feed, square table.
996-F 24" Hoefer, stationary head, back geared, power feed.
991-F 26" Rockford, sliding head, back geared, power feed.
994-F 28" Rockford, sliding head, back geared, power feed, tapping att.
1131-F 26" Barnes, sliding head, back geared, power feed.

MISCELLANEOUS.

657 Blower, pressure, Connetsville fig. 3, type H. H., cap. 6 cu. ft. per rev.
134-F Centering machine. 4" Whiton.
246-F Cutter and reamer grinder. LeBlond universal.
157-F Emery grinder. No. 5 Blount, double end on column, counter-shaft.
shaft, cap. 16" wheels with guards has 2-11" wheels.
912-F Flat turret, 3"x36" Jones & Lamson, with chucking equipment and roller feed.
451 Planer, 24"x24"x6' Pease.
556 Punch and shear. No. 5 Williams, White & Co., double end, 15" throats, cap. 1" in 1" mild steel and equivalent.
911-F Saw table, 2'6"x3'9", iron frame.
1134-F Shaper. 32" Walcott power down feed.
1050 Truck platform scales, No. 7 Fairbanks, cap. 2500 lb.

SECOND-HAND MACHINERY

FOR SALE BY

**C. C. Wormer Machinery Co., Dept. A., 97 Woodbridge St., W.,
Detroit, Mich.**

NEW MACHINES.

These new machines are offered at second-hand prices.

Drill, bench, Champion.
Gear hobber, No. 1 Farwell.
Gear tester, Farwell.
Hammers, 50 and 100 lb., Mayer.
Miller, hand, No. 6 Farwell.
Miller, Becker vertical style AB.
Miller, Lincoln, No. 7 Becker.
Miller, vertical, No. 2 Becker.

SECOND-HAND

DRILLS.

1, 2, 3 & 4-spindle sensitive.
15" Barnes, tapping.
22" Aurora, upright, sliding head.
24" Sibley, upright, sliding head.
25" Barnes, upright, sta. head.
28" Aurora, upright, sliding head.
31" Barnes, upright, sliding head.
10 spdl. National, square head.

GEAR CUTTERS.

18" Becker-Brainerd, spur and bev.
30" and 40" Flather, spur only. (2).
No. 1 Dwight-Slate, pinion, spur.
No. 11 Dwight-S., spur and bevel.

GRINDERS.

Emery, all sizes.
Internal, No. 70 Heald.
Plain 7"x36" Diamond.
Cutter, No. 1 Cincinnati.
Cutter, Gould & Eberhardt.
Cutter, Fellows gear shaper.
Wet tool, all sizes.
Electric, Hisey, type A, 220 v. d.c.

LATHES.

14"x6' Reed, r. & f. rest, h. s.
16"x6' Pratt & W., c. r., h. s.
18"x8' Walcott & Wood, c. r., h. s.
18"x 8' LeBlond, c. r., h. s.
18"x8' Hamilton, grd. hd. q. c., c. r. h. s.
22"x16' Putnam, pl. turning, b. g.
52" Stevens, pulley.

MILLERS.

No. 1 Knight, vert. mig. and drlg.
No. 2 Garvin, hand.
No. 8 Lincoln, Brainerd.
No. 3-A universal, Owen.

PRESSES, PUNCHES AND SHEARS.

No. 53 Fowler, pl. upright.
No. 141 Stiles & Parker, horning.
DG-54 Ferracute, double action.
Hand lever punch, No. 6 Pond.
Punch, Niagara, bench, geared.
Punch and shear, 20" thr., dbl. end.
Reveling shear, plate.
Rotary shear, 8" H.C. Smith, 30" thr.

PIPE MACHINES.

2" Merrell, "Apex".
4" Armstrong.
6" Curtis & Curtis.
8" Merrell.

Press, Ferracute SNG-102, dbl. col. gd.
Press, Consolidated, 19" gap.
Punch and shear, No. 3 Sutton.
Punch and shr., No. 4 Sutton, dbl. end.
Screw mche., No. 140 Wells, 1" cap.
Shaper, 16" Queen City, b. g., crank.
Shaper, 24" Walcott, b. g., crank.
Tapper, horiz., No. 1 Wells.

PLANERS.

20"x19"x4' New Haven.
24"x24"x6' Hendey.
28"x28"x7' Fitchburg.
30"x30"x14' Miles.

HAMMERS.

30 lb. Bradley, upright strap, (5).
40 lb. Bradley, helve.
125 lb. Bradley, upright strap.
50 lb. Beaudry, No. 2 Champion.
80 lb. Yeakley, pneumatic.
250 lb. Miles, steam.
700 lb. Bell, steam.

SAWS.

Cold saw, 4 1/2" rd., Cochrane-Bly.
Cold saws, Nos. 4 & 5 Cochrane-B. (2)
Hack saws, small, (6).

SCREW MACHINES.

5-16" No. 6 Brown & S., pl. head.
1/2" No. 1 Garvin, plain head.
1/2" No. 2 Costello, plain head.
1/2" No. 2 Pratt & W., pl. hd.
1 1/2" No. 4 Brown & S., plain head.
1/2" No. 2 Brown & Sharpe, auto.
1/2" & 1" Cleveland, automatic.
1 1/2" Hartford, automatic.

TURRET AND FOX LATHES.

15" B. & O., pl. hd., chasing att.
16" Fox, American, univ., b. g.
16" W. & S., pl. hd., auto. chk.
16" Garvin, pl. hd., wire feed.
16" Windsor, f. g. hd., p. f. turret.
20"x1' Lodge & D., b. g., h. s.
24" Davis, heavy turret, 2", h. s.
22" Gisholt, heavy turret, taper att.

MISCELLANEOUS.

Air hoists, various sizes, (24).
Boring mill, 48" carwheel, Bement.
Boring mill, 48" pulley, Harrington.
Cutting-off mchs., 2 & 4" H. & R.
Keyseater, No. 2 Davis, 1/2".
Keyseater, No. 2 Mitts & Merrill, automatic feed.
Tapper, horiz., 5-16" B. & S.
Tapper, horiz., No. 1 Garvin.
Hydraulic jack, 10-ton Dudgeon.
Oil separators, centrifugal, (2).
Oil furnace, No. 6 Stewart, with blower and pyrometer.

SECOND-HAND MACHINERY

FOR SALE BY

Niles-Bement-Pond Company,

111 Broadway, New York.

Located at Chicago, Boston and New York.

Send for Catalogue No. 18.

LATHES.

13x6 P. & W., r. & f., taper.
14x10 P. & W. c. r., taper.
15x7 speed lathe.
16x10 P. & W., r. & f. & t.
18x8 Davis, c. r.
18x6 Pond, turret tool post.
18x7 Pond, turret tool post.
19x8 Pond, compound rest.
20x10 Flather, c. r.
20x14 LeBlond c. r., taper.
22x12 Niles, with taper.
22x22 Niles.

28x12 Pond, compound rest.
30x20 Davis & Egan c. r., & raising blocks to swing 48".
32x12 Pond, compound rest.
36x17 Pond, 220 v. motor drive, taper.
40x16 Bement, b. g., not screw cutting.
42x22 Niles, comp. r., tri. grd.
42x30 Putnam, comp. r., tri. grd.
50"x39" Niles large lathe, with raising blocks to swing 73".
44 in. P. & W. pulley lathe.

SCREW MACHINES, TURRET LATHES, ETC.

No. 3, 2 15-16 in. Niles screw mche.
2x24 Jones & Lamson.
2x26 P. & W. piston and piston ring equipment.
21" Gisholt, turret.
24-27 Conradson semi-automatic turret.
2 3-16 in. hol. sp.
28 in. Milwaukee turret, 4 1/2 in. hol. sp.

1 in. Hartford automatic pin machine.
1 in. P. & W. automatic screw mach.
1 in. P. & W. 2 sp. automatic screw machine.
1 in. Acme old style 4-sp. automatic.
1 in. single turret Spencer automatic.
21-32 in. No. 2 Brown & Sharpe automatic screw machine.

BORING MACHINES.

30 in. tur. hd. b. & t. mill. Colburn.
37 in. Niles, b. & t., 2 heads.
5 ft. Niles, 2 heads.
6 ft. Pond, 2 hds. with slotting att.
7 ft. Niles, 2 heads.
8 ft. Niles, 2 heads.
10' Niles, 2 hds. 220 v., motor drive.
10-16 ft. Niles b. & t., 2 heads.

10-16' Bement, 220 v., d. c., motor dr.
2 in. sp. Kelly hor. bor. and drill.
3 1/2 in. sp. Bement hor. bor. & drill.
4 in. sp. Niles, hor. bor. & drill.
4 1/2 in. spindle Niles, floor borer.
98 in. swing x 10 ft. centers bor. & facing; weight: about 43,000 lbs.

UPRIGHT AND SENSITIVE DRILLS.

13 in. 1 sp. sensitive, motor d., 110 v.
10 in. 3 sp. sensitive, Slate.
10 in. 3 sp. sensitive, Sigourney.
2 spindle dbl. column sen., Langelier.
17 in. 4 sp. gang, Jones & L.
20 in. No. 23 Foote Burt high duty.
28" Aurora, sliding head.
30 in. sli. head, Gould & Eberhardt.
36 in. sliding head, Gould & E.

36" Aurora, sliding head.
3 sp. Niles rail drill, arrgd. for motor.
4 spindle Bement, multiple, 11 ft. between housings.
No. 11 multiple drill, P. & W.
10 sp. adjustable R. & W., capacity 1 1/2 in. holes in 37 in. circles, belt or motor; weight: 30,000 pounds.

RADIAL DRILLS.

4 1/2 ft. semi-radial, Barr.
4 ft. Niles, plain.
4 ft. Niles, univ.
5 ft. Niles, plain.
5 ft. plain, motor, Pond.

5 ft. 6 in. universal, Niles.
6 ft. heavy plain, Pond.
6 ft. 10 in. semi-universal, Niles.
7 ft. 6 in. full universal, Niles.
Univ. portable radial, Prentice.

MILLERS AND GEAR CUTTERS.

No. 1 Duplex Van Norman.
24x7 table, plain, Becker.
No. 1 B. & S. plain, late model.
No. 14 LeBlond, plain.
No. 3 LeBlond, plain.
No. 4 LeBlond, plain.
No. 13 single spindle new model profiler, P. & W.

43-94 No. 3 Cincinnati plain, b. g.
6x14 thread miller, P. & W.
6x80 thread miller, P. & W.
36" spur and bevel, Gould & E.
36 in. spur gears, Pond.
36"x8" No. 3 B. & S., spur gears.
48"x10" No. 4 B. & S., spur gears.
72 in. spur gears, Niles.

SHAPERS AND SLOTTERS.

10 in. crank shaper, P. & W.
10 in. crank shaper, Niles.
12 in. crank shaper, Bement.
20" Bement, 220 v. motor, traveling head, like new.

20 in. Stockbridge, 2 piece crank.
18 in. double trav. head, Cincinnati.
30 in. triple grd. rack, Cincinnati.
12 in. crank slotter, Bement.
14 in. crank slotter, Niles.

SECOND-HAND MACHINERY

Niles-Bement-Pond Company—Continued.

RAILROAD MACHINERY.

42" Niles heavy car wheel lathe.
46 in. car wheel lathe. Bement.
Niles double axle lathe.

Bement double axle lathe.
Putnam double axle lathe ex. heavy.

PLANERS.

22x22x6 Harrington.
26x26x7 Niles, heavy type.
26x23x16 Miles, 2 hds.
30x30x6 Pond, 1 head.
30x30x8 Pond, 2 heads.
30x30x11 Niles, 1 head.
30x30x24 Sellers, 2 hds.
36x36x14 Pond, 4 heads.
36x36x20 Pond, 3 hds.
42x42x20 Miles, 3 hds.

48x48x12 Niles, 3 hds.
48x48x16 Pond, 4 heads, heavy.
48x48x20 Sellers, 3 hds.
72x60x20 Niles, 2 hds.
86x86x30 Pond, 4 heads, reversing motor drive.
96x96x30 Niles, 4 heads.
14'6"x12'x30' Niles, 4 heads, 220v., pneumatic clutch dr., wt. 335,000 lbs.

MISCELLANEOUS.

Bar cut-off saw, 22" diam. blade.
Bending and straightening machine, horizontal, for 10 to 15 in. beams and channels.
Cut-off machine, 24 in. P. & W.
Cut-off machine, 42 in. Starr.

Grinder, wet tool, Gisholt.
Grinder, drill, 3 in. Sellers.
Grinder, plain, 5x32 in. Landis.
Grinder, univ., 10x30 Landis.
Grinder, 12x96 in. Springfield.
Saw grinder, automatic.

FOR SALE BY

Frank Toomey, Inc.,

127 N. Third St., Philadelphia, Pa.

LATHES.

30"x22' Bement-Miles.
30"x18' Bement-Miles.
28"x16' Fifeild.
27"x21' Pratt & Whitney, taper att.
26"x17' Johnson, taper attachment.
26"x12' Fifeild.
21"x9' Lodge & Davis.

20"x12' Lodge & Davis.
18"x14' Schumacher & Boye.
18"x10' Schumacher & B., taper att.
18"x8' LeBlond, turret attach.
18"x8' Reed.
16"x6' Hendey-Norton, cone head, taper attachment.

PLANERS.

60"x60"x14' Pond, two heads.
60"x60"x14' Sellers, 4 heads.
33"x33"x12' Woodward & Powell.
30"x30"x10' Bement-Miles, 2 heads.
24"x24"x6' Putnam.

48"x48"x16' Detrick & H., 2 heads on cross rail, 1 side hd., arranged to plane 60".
12' Moore crank planer.

SHAPERS.

24" American.
20" Gould & Eberhardt.

12" Bement.

MILLING MACHINES.

36"x12' slab, heavy pattern.
No. 5-B Becker-Brainard vertical, motor driven.
No. 3 Cincinnati universal.
No. 3 Kempsmith plain.

No. 3 Becker Brain'd pl., table 12x42.
No. 1 Brainard plain, table 12x48.
Pratt & Whitney plain, table 55x5.
No. 6 Whitney hand millers, (4).

MISCELLANEOUS.

Bolt cutter, 1 1/2" National.
Boring mill, 72" Bickford, 2 heads.
Boring mill, horiz., 48" Bement.
Boring mill, 38" Niles, 2 heads.
Boring and turning mill, 48" Sellers, 2 heads.
Card cutting presses No. 103. (5).
Hammer, steam, 350 lb. Bement-Miles, single frame.
Hammer, steam, 3,500 lb. Bement-Miles, double frame.
Hammer, board drop, 500 lb. Pratt & Whitney.
Dynamos, motors, engines and boilers.

Drill, 26" Currier & S., slid'g head.
Internal grinding lathe, 16"x5' Diamond.
Pipe machines, 3" and 6" Curtis & Curtis, hand power, (2).
Presses, combined horning and wiring, No. 22 Adriance, (2).
Pulley boring machine, 60" Harrington, upright.
Shear, single end, 50" throat, 2" capacity, engine driven.
Turret lathes 1 1/2" and 2" Foster & Kimball.

Wood-working machines both new and second-hand. Send for our stock books.

SECOND-HAND MACHINERY

FOR SALE BY

Badger-Packard Mch. Co., 72-74-76 W. Water St., Milwaukee, Wis.

LATHES.

16"x8' Bradford lathe, comp. rest and countershaft, 1 1/2" hollow spindle, steady and follow rest, and 12" 4-jaw independent chuck.	
24"x14' Bradford lathe, compound rest, solid spindle, with chuck and friction countershaft.	\$ 500.
26"x12' Prentice lathe, compound rest, hollow spindle.	550.
50"x20' New Haven lathe, compound rest, solid spindle, power cross feed, power on compound rest.	900.
48"x16' Putnam lathe, compound rest, solid spindle, power cross feed.	1000.
38"x26' New Haven lathe, compound rest, power cross feed, solid spindle, power feed on compound rest.	750.
60"x17' New Haven lathe.	1050.

PLANERS.

60"x60"x16' Niles planer.	\$1200.
24"x24"x 9' New Haven planer.	
26"x26"x8' Merrill iron planer.	275.

MISCELLANEOUS.

Bolt cutter, 3" National No. 6, taps and dies.	\$ 250.
Drill, portable, No. 4 Dallett.	60.
Drill press, 30".	50.
Press, 150-T Eimes, 14" bars and cross head and short bars.	200.
Slotter, 13" stroke, Putnam.	450.
Twist drill grinder, Yankee.	40.
Water grinder, 16" Diamond.	35.

FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,
210-212 Washington Ave., St. Louis, Mo.**

LATHES.

14"x 6' Goddard.	30"x 8' Whitcomb-Blaisdell.
14"x 8' Von Wyck, quick change.	20"x12' American, quick change.
14"x 8' American, quick change.	21"x 9' Lodge & Davis.
14"x12' Lodge & Davis.	32"x10' Bradford.
18"x 8' Rahu & Carpenter.	80"x10' centers, heavy turning.
18"x10' Porter.	

SHAPERS AND PLANERS.

24"x24"x6' Lodge & Davis.	32"x32"x14' Niles.
24"x24"x8' American.	36"x36"x8' Hamilton.
24"x24"x8' Lodge & Davis, 2 heads.	44"x44"x14' Niles.

DRILLING MACHINES.

20" Barnes.	32" Aurora, sliding head.
24" Aurora, sliding head.	4' arm Dietz, gang.
28" American, sliding head.	

BORING MILLS.

34" Gisholt, turret head.	No. 1 Barret boring machine.
36" two heads.	72" Niles Corliss engine cylinder boring machine.
72" Niles, one head.	

AIR COMPRESSORS.

6x6 belted.	1x12x14 steam driven.
8x8 belted.	500' steam driven.
9x9 steam driven.	1000' steam driven.
10x10x10 steam driven.	

MISCELLANEOUS.

Bending rolls, No. 14, cap. 98".	Jacks, simplex, 12 and 15 ton.
Bolt cutter, 1 1/2" double head.	Miller, No. 3 1/2 Fox.
Brake, No. 16 Robinson, cap 10'.	Pipe machine, 4" Borden.
Bulldozer, No. 4 Williams-White.	Pipe machine, 6" Curtis.
Grinder, No. 16 Brown & Sharpe.	Pulley lathe, 30" Stevens.
Grinder, 10"x72" Landis.	Screw machine, automatic 9-16".
Hammer, steam, 800 lb.	Squaring shear, cap. 3/4" plates, 6' knife, 25" gap, with multiple punching dies.
Hammer, steam, 350 lb.	
Jack, hydraulic, 50 ton.	

SECOND-HAND MACHINERY

FOR SALE BY

Marshall & Huschart Machinery Company,

Chicago

Indianapolis

St. Louis

BORING MILLS.

30" Baush turret hd. vert. 3-jaw chk.
30" Bullard, gd. fd., thread cutting.
34" King, 3-jaw chuck.
37" Baush, 2 swivel heads.

42" Bullard, 1 swivel, 1 turret head.
52" Rogers & Hemphill, 2 swivel hds.
48" Miles car wheel borer, for 36" wheels.

DRIELS.

2-sp. Superior sensitive.
4-sp. Barr sensitive.
2-sp. Rockford 14" manufacturers gang.
2-sp. Rockford 20" manufacturers gang.
4-sp. Foote-Burt gang.
10-sp. National automatic multiple.
12-sp. Western Tool Co. cluster drill.
12" Rockford gear driven bench.
14" Rockford, lever feed.

23" Rockford, stationary head.
24" Mechanics, friction, power fd.
24" Sibley & Ware, sliding head.
32" Hamilton, sliding head.
34" Lodge & Davis, sliding head.
24" Gang radial, swinging table.
36" Bickford radial, plain.
36" Economic radial, plain.
44" Alfred Box radial, plain.
5" Western full universal radial.

GEAR CUTTERS, HOBBER, ETC.

No. 1 Farwell gear hobber.
18" Brainerd gear cutter, spur and bevel.
22" Gould & E., spur and bevel.
30"x7" G. & E., new type, spur gear.

30" Flather, spur gear.
24" Gleason bevel gear planer.
36" Brown & Sharpe, spur gear.
Norris 4-sp. multiple gear cutter.
34"x11" gear milling machine.

LATHES AND TURRET LATHES.

9"x24" Rockford.
14"x5" Fay & Scott.
14"x6" Lodge & Shipley, 5-step cone.
16"x6" Blaisdell, compound rest and taper.
16"x8" American, q. c. g., chuck, relieving and taper attach., draw-in chuck.
16"x8" Lodge & Shipley, patent head.
16"x8" Lodge & Shipley, with pan, multiple stops, connected comp. & pl. rests.
16"x8" Porter, compound rest.
16"x8" Flather, with chuck, taper attachment, etc.
18"x10" Lodge & Shipley, patent head.
18"x15" Whitcomb-Blaisdell, compound rest, 3-step cone.
30"x10" Flather, 4-step cone, compound rest.
21"x11" Lodge & Davis, 4-step cone, compound rest, taper.
22"x16" Pond, compound rest.
26"x20" Sellers, compound rest, good condition.
26"x12" and 26"x14" Star, compound rest.
32"x10" American, compound rest.
36"x40" Niles, two steady rests, bed two sections, good condition.
Fitchburg Lo-Swing lathe, two carriages, single pulley drive.
14" Garvin turret lathe, 14" hollow spindle.
21" heavy Gisholt turret lathe.
14" Conradson turret lathe.

MILLING MACHINES.

No. 10 Pratt & Whitney, hand.
No. 4 Garvin, plain.
No. 3 Owen pl., length & cross fds.
No. 5 Kempsmith plain, cone type.

No. 3 Cincinnati universal cone type, all power feeds.
22"x22"x12" Newton slab miller.

PLANERS.

22"x22"x5" Pond, parallel drive.
24"x24"x6" New Haven.
26"x26"x8" Gray, two heads.

30"x30"x8" American.
48"x36"x20" Cincinnati, 3 heads.

SHAPERS.

12" Rockford, crank.
16" Hendey, friction.
20" Rockford, crank.

24" Smith & Mills, back grd. crank.
26" American, tri. grd., shifting belt.
36" Hendey, travelling head.

Send for complete descriptions. Write us for what you want.

SECOND-HAND MACHINERY

FOR SALE BY

McCoy & Brandt, - - 410 House Building, Pittsburg, Pa.

Air compressor, 8x8" Ing. Rand, belt.
Bolt cutter 3" Acme, single head.
Bulldozers, Nos. 2, 4, 5, 7 W.-W.
Crane, 15 ton, 31' 6" span, 220 v., d.c.
Gas engines, 12, 16, 35, 100 h. p.
Generators, 1, 5, 10 k. w., 110 v., d.c.
Hammer, 75 lb. Bradley, upright str.
Lathe, 16"x6" Reed, plain rest, h. s.
Lathe, 16"x8" Porter, comp. r., h. s.
Lathes, turret, 16" Springfield and
Dreses.

Lathe, 18"x8" Robbins, comp. r., h. s.
Motor, 1 1/2 h. p., 110 v., d.c. 1015 r.p.m.
Motor, 5 h. p., 2 p., 60 c., 220v., 1750rpm.
Motor, 5 h. p., 3 p., 60 c., 220v., 1800rpm.
Motor, 5 h. p., 3 p., 60 c., 220v., 1200rpm.
Motor, 1 h. p., 3 p., 60 c., 220v., 1800rpm.
Planer, 42"x42"x15" New Haven.
Punch, No. 7 L. & A. 18" thr., 3" cap.
Shaper, crank, 18" Lodge & Davis.
Shaper, 26" Cincinnati, triple gear.

Partial List—Stock Shipments.

FOR SALE BY

Western Machinery Co., 610 Baymiller St., Cincinnati, Ohio

LATHES.

14"x6" Bradford-Mueller, taper.
15"x7" Pratt & Whitney, taper.
16"x6" Gray, hol. spin., plain rest.
16"x6" Bement, sol. spin., comp. r.
17"x10" Gray, h. s., c. r., turret taper.
18"x8" Sebastian, c. r., turret att.

18"x8" Lodge & Davis, h. s., pl. r.
20"x10" Flather, hol. spin., comp. r.
26"x12" Niles, hol. spin., c. r.
26"x12" Lathe & Morse, sol. sp., c. r.
32"x22" New York, sol. spin., c. r.
42"x22" Niles, c. r., triple geared.

SHAPERS.

15" Hende, geared, micrometer att.

20" Steptoe, geared.

PLANERS.

22"x22"x6" Gray.
26"x26"x8" New Haven.

32"x32"x8" Putnam.
36"x36"x8" Pond, 2 heads.

MISCELLANEOUS.

Belts, double leather, 14" & 15".
Drills, sensitive, (6).
Drills, upright, 18, 20, 28 & 40".
Drill, 4" radial, plain, \$250.
16" Fox lathe, Warner & Swasey.

Gas engines, 6 to 20 h. p.
Grinder, univ., No. 2 Landis.
Hammers, 25 lb. and 200 lb.
Presses, plain, Ferracute, (2).
Saws, power, (4).

A CHAIN

The advertisers in the Tool List pay Hitchcock.
He sends you the Tool List free. You buy the
articles advertised. The chain is complete.

BUT—

—suppose the advertisers do not know that you
saw it in the Tool List—where does Hitchcock
come in? When writing to advertisers, won't
you kindly give Hitchcock credit?

Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels
" No. 0 32 " "
" No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table
" No. 9 Tilting Table
" No. 10

Boring attachment if wanted.



Jointers

8 in., 5 and 6 ft. tables and guard,
12, 16, 20, 24 and 30 in., 7 ft. tables
and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

Chicago Machinery Exchange

1214-1228 Washington Boulevard, Chicago

Second-Hand Wood-Working Machinery

For a large list of used wood-working machinery, consult the **Wood-Working Machinery List**, a publication similar to this but devoted to the advertising of saw-mill and wood-working machines. A copy may be had on application to the publisher, **A. H. Hitchcock, 1220-1235 Caxton Building, Chicago, Ill.**

THE E. L. ESSLEY MACHINERY CO

555-557 WASHINGTON BLVD CHICAGO
222 GRAND AVE MILWAUKEE

Upright Drills and Radials.

2" American, sensitive radial.
4" Bickford, pl. radial, rebuilt.
24" Superior, s.h., b.g., p.f., a.s.
D-3 24" Colburn, high duty pl. tbl.
3" Fosdick, plain radial.
3 1/2" Baush, plain radial.

Lathes.

14x6 Monarch, 3-st. cone, d. b.g.
16x6 Springfield, standard pat.
22x12 Milwaukee, dbl. bk. grd.
20x8 Lodge & Shipley, q. c.
16x8 Lodge & Shipley, q. c.

Milling Machines.

No. 2 Owen plain, new.
No. 3 Owen universal, new.
No. 3 LeBlond pl., dbl. bk. grd.

Boring Mills.

36" Bridgeport, one head.
60" Baush, 2 heads.
51" Niles, 2 heads.
Boring machine, Barrett horizontal, 34" bar.

Shapers.

20" Kelley, single geared.
24" Gould & Eberhardt, bk. grd.

Miscellaneous.

Gear hobber, No. 1 Adams-F.
Gear hobber, Reynolds.
Grinder, Bath universal, 10x25".
Grinder, automatic surface, No. 3
Diamond, 48x12x9.
Hammer, bd. drop, 600. lb. P. & W.
Hammer, single frame steam,
200 lb. Chambersburg.
Power punch, 12" style C-Cleveland, new, cap. 1" in 1/2" plate.
Punch & s., No. 2 Cin'ti 12" thrt.
Punch & shear, New Doty, 17" throats, 1x1".
Saw, Smith & P., cap. 4 1/2" rods.
Saw, No. 14 Higley, 3 blades, arranged for motor drive.
Shear, rot. slitting, 6" thrt., 4" cap.
Wire straightener, 3-16" Shuster, "Adt" model, cap. 4", new.

For Sale

Large Plain Grinder

Large Landis Plain Grinding Machine,
30-inch swing, 150 inches between centers,
belt driven, in first-class condition.

Radial Drills

4-foot Bickford Universal Radial Drill,
speed box drive.
4-foot Bickford Plain Radial Drill,
speed box drive.

Chandler & Farquhar Co.

419-425 Atlantic Ave., Boston, Mass.

"New York's Greatest Clearing-House—New York's Lowest Prices"

Big Tools

**For Much Less Than You Might Have
Ever Expected To Pay**

10x10x20 ft. Planer

"Niles-Bement-Pond" Standard heavy pattern. Thoroughly modern. High-grade Tool in the finest A-1 condition, still set up in prominent plant just as it had been used, on most accurate classes of work.

Four (4) Heads—two on Crossrail and one on each housing—complete with full equipment, rigged for motor-drive.

76-In. Planer.

76" x 76" x 14' "Niles-Bement-Pond," 4 hds., two on rail, one on each housing, complete.

60-In. Planer.

60" x 60" x 18' "Woodward & Powell," 4 hds., two on rail, one on each housing, complete.

48-In. Planer.

48" x 48" x 16' "Niles-Bement-Pond," 3 hds., two on rail, one on front housing complete.

36-In. Planer.

36" x 36" x 8' "G. A. Gray Co.'s," 2 heads on rail, fitted for motor-drive.

30-In. Planer.

30" x 30" x 8' "Woodward & Powell," two heads, one on rail, one on front housing.

6-ft. Radial Drill.

"Pond Machine Tool Co.," 6' arm, plain radial drill, standard and heavy pattern, complete.

65-In. Lathe.

"Pond Machine Tool Co.," heavy pattern, 65" swing, 254" bed, power cross and angular feeds.

48-In. Lathe.

"Pond Machine Tool Co.," heavy pattern, 48" swing, raise blocks separate to swing 66", bed 24' long.

24-In. Turret Lathe.

"Gisholt Machine Co.," 48" hollow spindle, dbl. carriage, taper attachment, complete.

10-ft. Bending Rolls.

"Hilles & Jones," heavy standard pattern, drop-end housing.

24-In. Slotter.

"Niles Tool Works," heavy pattern, all the automatic feeds to table, 24" stroke.

60" Punch & Shears.

"Hilles & Jones (single) interchangeable, weight 52,000 lbs., steel frame.

14-20 ft.

Upright Boring Mill

built by "Niles Tool Works" fitted up with two (2) heads on crossrail complete with Slotting Attachment, and full regular equipment, in exceptionally first class condition.

Can be inspected in big tool shop where used on Government work.

100-In. Boring Mill.

"Niles-Bement-Pond" two heads on crossrail, heavy pattern.

80-In. Boring Mill.

"Betts Machine Co.'s" two heads on crossrail, heavy pattern.

72-In. Boring Mill,

"Niles Tool Works," two heads on crossrail, heavy pattern.

60-In. Boring Mill.

"Bullard Machine Tool Co.," 2 heads on crossrail, heavy pattern.

44-In. Boring Mill.

"King Machine Tool Co.," 2 hds. (one turret) complete with speed-box, heavy pattern.

"Planer Type"

Milling Machines.

"Niles-Bement-Pond" 24" x 8', 24" x 12', heavy standard, modern style.

J. J. McCABE, 30 Church St., NEW YORK

In replacing our manufacturing equipment, we find the following first class Used Machine Tools, which we offer at attractive prices:

LATHES

16"x 8' Reed.
17"x 6' Gray.
18"x 8' Lodge & Shipley, single pulley driven. (2).
20"x 8' Lodge & Shipley, q. c. g.
20"x 10' Lodge & Shipley, q. c. g.
20"x 12' Lodge & Shipley, q. c. g.
24"x 8' Lodge & Shipley, q. c. g.

SPECIAL LATHES

No. 3 Lodge & Shipley Rapid Reduction Lathe.
24"x 7' Lodge & Shipley Chucking Lathe.
14"x 6' Towsley Speed Lathe.

METAL SAWS

Globe Power Hack Saw, 8" cap.

MISCELLANEOUS MACHINES

One Marion Double Grinder.
One Marion Double Grinder on stand.
One Diamond Disc Grinder on column.
One Sturtevant Blower, Diameter of outlet 24".
Universal Swivel Table for Radial Drill.
Brown & Sharpe Grindstone Frame for 5"x36" Stone.
One Mueller Grindstone Frame for 4"x27" Stone.
One 12"x40" Mumford Molding Machine.
One Ohio Planer, 24"x24"x12' with two heads on cross rail.

The Lodge & Shipley Machine Tool Co.

CINCINNATI, OHIO, U. S. A.

During the dull times incident to the European war, we are taking the opportunity to rearrange and renew our shop equipment. We therefore offer the following machine tools, all in first-class running order:

1-17"x 6' Standard Engine Lathe with compound rest and box turret on carriage.
1-17"x 6' Standard Engine Lathe with compound rest.
1-17"x 6' Standard Engine Lathe with plain rest.
1-17"x 6' Standard Engine Lathe, compound rest interchangeable with turret on carriage.
1-17"x 8' Standard Engine Lathe, 3 Step Cone Friction Double Back Gear.
1-17"x 8' Standard Engine Lathe, 3 Step Cone Friction Double Back Gear.
1-17"x 10' Standard Engine Lathe with compound rest.
1-17"x 12' Standard Engine Lathe with compound rest.
1-24" raised in sand to swing 27½"x 10' Standard Engine Lathe with compound rest.
1-25"x 10' Bradford Engine Lathe with compound rest.
1-28-36"x 14' New Haven Engine Lathe, not screw cutting.
2-2"x 24" Jones & Lamson (6 head) Flat Turret Lathes.
1-30"x 30"x 8' S. H. Smith-Silk Planer.
1-36"x 36"x 10' D. H. Pond Planer.
1-42"x 42"x 12' Wheeler Planer, one head.

THE GREAVES-KLUSMAN TOOL CO.,

Cincinnati, Ohio

New Machinery

Miscellaneous Lines at Reduced Prices

LATHES.

Item.		
S 439	Rockwell 16x8, 3 step cone, double back gear, taper att.	\$ 330.
S 439-A	Rockwell 16x8, 3 step cone, double back gear.	310.
S 90	South Bend 9"x42" with countershaft	80.
S 677	Rahn-Larmon 24x12 double back geared	800.
S 678	Rahn-Larmon 22x10 double back geared	560.
S 354	New Haven 28x18 raised to 31"	1050.
S 446	Rahn-Larmon 36x16 double back geared	1225.

DRILLS.

S 391	Mueller 2 1/2' radial	\$ 420.
S 451	Sibley 28" adjustable head	236.
S 346	Hilbert 3' radial, geared feed, tapping att. gear box drive	475.
S 406	Fox No. 1, 9x12 head, 8-1 1/2" spindles	625.
S 407	Fox No. 3, 12x14 head, 14-1 1/2" spindles	1350.
S 408	Fox No. 5, 20x30 head, 12-2 1/2" spindles	2260.

GRINDERS.

S 334	Besley No. 10G, 18" disc	\$ 267.
S 283	Ingersoll 36" inserted tooth cutter, with motors	300.
S 145	Greenfield universal tool and cutter	265.
S 142	Valley City No. 3, tool and surface	45.
S 143	Valley City No. 9, tool and surface	110.
S 134	Roth 18" motor drive, 220 volt, d. c.	240.

Second-Hand Machinery

PLANERS.

Item.		
H 169	Sellers, 42x42x6 1/2, 2 heads.	H 168 Sellers, 42x42"x8'6", 2 heads.
H1004	Hamilton 36x36x10, var. sp'd.	

LATHES.

H 767	11x3 1/2, speed.	H1029 Whitcomb-Blaisdell, 18x8.
H 804	LeBlond, 14x8.	H 948 American, 18x10.
H1076	Lodge & Davis, 16x6.	H1028 Hamilton, 19x10, q. c. g.
H1027	Flather, 17x8, q. c. g.	H 838 Putnam, 32x16.
H 947	Schumacher & Boye, 18x6.	

DRILLING MACHINES.

H1091	Cleveland, 15 ft. wall radial.	H 864 Quint 6 spindle turret head.
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BORING MILLS.

H1097	Bullard 30"	H1099 Niles, 37", two heads.
H 733	Baush, 32", turret head.	H 775 Bullard, 60", two heads.

GRINDERS.

H 812	Landis No. 1 universal, range 9x24.	
H 811	Brown & Sharpe No. 3 cutter and reamer grinder.	
H 802	Cincinnati No. 2 universal tool grinder with 220 v., d. c. motor.	
H 791	Valley City No. 9, disc and surface grinder.	
H 987	Gisholt universal tool grinder.	
H1056	Whitney 16" wet grinder.	

MILLING MACHINES.

H 665	Ingersoll, slab 36x36x8.	H1092 Cincinnati No. 3 plain.
H1066	Becker No. 5B, plain.	H 860 Kempsmith No. 8 univ.

SHAPERS.

H1096	American, 16" crank.	H1061 Milwaukee 24" crank.
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TURRET MACHINERY.

H 914	Conradson 24-32 turret lathe.	
H 765	Bardons & Oliver, 13", hand screw machine.	

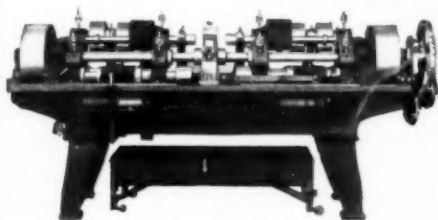
Joseph T. Ryerson & Son

16th and Rockwell Sts., Chicago, Ill.

The "New Britain" Automatic

Of the Single Head Type

drills, faces, taps, threads, etc., one end of irregular shaped castings and forgings, and second operation rod work, *in the time of the longest single operation.*



The "New Britain" Double Head Automatic

handles pieces which require machining at both ends in half the time required if each end were finished separately, and the operations performed on the two ends need not be the same. The Single Head machine is from three to five times more productive than the hand turret lathe, and the Double Head type enables one operator to do as much work in a day as he could turn out by ordinary methods in a week. The design and construction of "New Britain" Automatics insure permanent accuracy.

*Your inquiry involves no obligation
Ask all the questions you want to*

The New Britain Machine Co.
60 Chestnut St., New Britain, Conn.

